Risk-Taking Behaviours in Adolescent Boys and Girls: Sexuality and Dietary Health

Lynn Ann Armstrong

Department of Graduate and Undergraduate Studies in Education

Submitted in partial fulfillment of
the requirements for the degree of
Master of Education

Faculty of Education, Brock University
St. Catharines, ON

Abstract

This study examined adolescents' reported sexual and dietary health-risk behaviours and perceptions. Specifically, this study analyzed the data of 600 students (300 male, 300 female) in grades 9, 11, and OAC (*mean*, *standard deviation*). The mean age of the students in the sample is 16 with a standard deviation of 1.6. The study was a secondary analysis of the first-year data of a 3-year longitudinal study conducted by Youth Lifestyle Choices-Community University Research Alliance (YLC-CURA) on adolescents. To explore sexuality and dietary health, this study purposefully selected sections of the survey that represented sex and dieting behaviours of adolescents. Separate gender and age data analyses revealed different patterns among the variables. Specifically, findings revealed that adolescents who engaged in recent sexual activities were more likely to have a relatively more positive body image perception and were relatively more likely to engage in disordered eating. Across both genders and 3 age levels, adolescents reported that despite their unhealthy dietary habits they felt that dieting was not a high-risk behaviour. Results were discussed in terms of educational implication for sexual health programs.

Acknowledgements

There are a lot of people who played important, supportive roles in helping me complete this thesis. I first need to thank my parents, Bill and Marilynn, for not only listening to me complain when things weren't working out but also for nudging me back to the computer when I wanted to walk away.

I want to thank my siblings, Teresa, Grant, and Gail and their families who kept on remarking, "You're not done *yet*?!" Without them I probably would have had a tad bit more sanity, but then again what are siblings for?

Thanks to Michelle and Terra, my two best friends and surrogate sisters. They always encouraged my progress and always listened when I griped and cried about problems encountered along the way.

Thank-you to the bank for not forcing me to pay back my student loan just yet.

I especially want to thank my partner-in-crime, Jennifer. Through our mutually exhausting journey, we have become good friends. Thanks for listening and understanding. I can't wait for us to walk across that stage together!

Finally, I want to thank my thesis advisor, Dr. Sandra Bosacki, and my thesis committee members, Dr. Vera Woloshyn and Dr. Tony Bogaert. Without them, this thesis would definitely not be what it is today.

Table of Contents

	Page
Abstract	ii
Acknowledgements	iii
List of Tables	vi
CHAPTER ONE: THE PROBLEM	1
Introduction	1
Background to the Problem	5
Statement of the Problem	6
Purpose of the Study and Research Questions	7
Definitions of Terms	10
Rationale	10
Theoretical Framework	11
Methodology and Research Procedure	12
Importance of the Study	13
Scope and Limitations of the Study	14
Outline of the Remainder of the Document	15
CHAPTER TWO: REVIEW OF RELATED LITERATURE	17
Introduction and Outline of the Chapter	17
Risk-Taking in Adolescence	17
Sexuality	21
Dietary Health	28
Sexuality and Dietary Health	33
Education, Sexuality, Dietary Health, and Risk-Taking	34
Future Research and Summary of Research	37
The Present Study	39
CHAPTER THREE: METHODOLOGY AND PROCEDURES	41
Chapter Overview	41
Participants	41
Research Design and Methodology	42
Instrumentation	43
Data Analysis	47
Limitations	49
Ethical Considerations	51
Restatement of the Problem	51
Chapter Summary	52
CHAPTER FOUR: DATA ANALYSIS AND FINDINGS	53
Chapter Overview	53
Hypothesis Testing	104
Chapter Summary	109

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND IMPLICATIONS. . . 113
Main Findings and Support for Hypotheses. 113
Implications of the Current Findings 119
Limitations of the Current Study 128
Conclusions of the Study 131

References 136

Appendix A: YLC-CURA Questionnaire 149
Appendix B: Proposal to YLC-CURA 152
Appendix C: YLC-CURA Personal Acceptance Letter 160
Appendix D: YLC-CURA Research Ethics Board Acceptance Letter 162
Appendix E: Research Ethics Board Secondary Analysis Approval Letter 164
Appendix F: Additional Correlational Findings 166

List of Tables

Table		Page
1:	Incidence Rate for Sexuality Variables	54
2:	Incidence Rate for Health Variables.	55
3:	Incidence Rate for Risk Perception Variables	56
4:	Descriptive Statistics for All Participants	57
5:	Descriptive Statistics for Males	58
6:	Descriptive Statistics for Females	59
7:	Descriptive Statistics for Grade 9	60
8:	Descriptive Statistics for Grade 11	61
9:	Descriptive Statistics for Grade OAC	62
10:	Descriptive Statistics for Grade 9 Males	63
11:	Descriptive Statistics for Grade 9 Females	64
12:	Descriptive Statistics for Grade 11 Males	65
13:	Descriptive Statistics for Grade 11 Females	66
14:	Descriptive Statistics for Grade OAC Males	67
15:	Descriptive Statistics for Grade OAC Females	68
16:	Analysis of Variance for Abstinence	72
17:	Analysis of Variance for Recent Sex	74
18:	Analysis of Variance for Sexual Risk	76
19:	Analysis of Variance for STD/Contraceptive Use	77
20:	Analysis of Variance for Sexual Risk Outcomes	78

Table

21: Analysis of Variance for Body Image Perception 80

22: Analysis of Variance for Disordered Eating 81

23: Analysis of Variance for Binge Eating / Under-eating 83

24: Analysis of Variance for Sexual Risk Perception 84

25: Analysis of Variance for Dieting Risk Perception 86

26: Correlational Analyses Results, All 88

27: Correlational Analyses Results, Males above diagonal, Females below diagonal 90

28: Correlational Analyses Results for grade 9 students 93

29: Correlational Analyses Results for grade 11 students 94

30: Correlational Analyses Results for OAC students 95

31: Correlational Analyses Results for grade 9 males and females 98

32: Correlational Analyses Results for grade 11 males and females 99

33: Correlational Analyses Results for OAC males and female 100

CHAPTER ONE: THE PROBLEM

Introduction

Adolescence is a time period for sexual and psychological maturity when adolescents experience pubertal transformation. It is entered into at approximately 10 to 12 years of age and ends sometime between 18 and 22 years (Santrock, 1996). This transformation includes both physical and psychological changes. Physically, most adolescents experience the maturation of reproductive organs; they also develop their secondary sexual characteristics, which include the growth of body hair, breasts, and deepened voices (Santrock). Psychologically, adolescents experience further cognitive and emotional development. For example, regarding cognitive development, according to Piaget (1954) adolescents reach formal operational thought. Piaget claimed that during this stage of development adolescents acquire the ability to reason in more abstract and logical ways as compared to younger children, who think in more concrete, tangible terms (Santrock).

Psychological development during adolescence also includes a more detailed self-concept (Harter, 1999). Adolescents report that they often feel compelled to present a different "self" or character for each of the areas of their personal dynamic to multiple audiences. For example, they tend to exhibit different personal qualities to their parents, their friends, their teachers, and their romantic partners (Harter). One role in particular is that associated with stereotypic gender-role expectations. Mixed messages are sent out such as men are expected to be sexually experienced or they will be labeled a "sissy" (Baumeister & Tice, 2001; Santrock, 1996). In contrast, women are expected to be nonexperienced sexually to avoid being labeled a "slut" or "easy", but at the same time

adolescent females are taught to be sexy in order to attract potential future partners (Baumeister & Tice; Santrock).

Despite current education and societal goals to decrease the amount of adolescent sexual activity, Canadian adolescents currently view premarital sex as a permissible act. In a recent Canadian study (Fisher & Boroditsky, 2000), 27% of adolescents aged 15 to 17 reported being sexually active and 53% admitted to having more than one sexual partner over the past 2 years. Over 40% of these adolescents reported infrequent and inconsistent use of contraception (Fisher & Boroditsky). Thus, adolescents engaged in sexual activities and generally did not use contraception (Chewning & Van Koningsveld, 1998). In the Niagara Region, only 27% of sexually active youth from age 15 to 19 years report using condoms "often" or "always" (Statistics Canada, 1996). Research on risk behaviours suggests that adolescents engage in these risk-taking behaviours without fear of the consequences of their actions (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). For example, in 1998, 464 girls under the age of 14 and 20,859 girls between the ages of 15 and 19 received an abortion in a hospital or clinic (Statistics Canada, 2000).

There is also an increasing concern for adolescents' dietary practices and their body image concerns. In a time period of increasingly unattainable ideal body images (Tenore, 2001), research suggests that many adolescents question their sense of self and some feel their self-esteem drop with physical changes during puberty (O'Dea & Abraham, 1999). This lowered self-esteem and negative body image may also lead to serious risk-taking behaviours such as extreme dieting or binge eating and purging, referred to as disordered eating habits (Polce-Lynch, Myers, Kliewer, & Kilmartin, 2001; Striegel-Moore & Cachelin, 1999).

Research suggests that females feel these body image concerns more often than males because males often welcome pubertal weight gain. This is not to say that males do not have these concerns, just that they may share different concerns or be differently motivated. For example, to exhibit stereotypical "masculine" characteristics, some boys strive to increase their physical stature, whereas to exhibit stereotypical "feminine" characteristics, some girls strive to reduce or diminish their physical size or stature (O'Dea & Abraham, 1999).

In addition to sexual risk-taking behaviours such as unprotected sex and multiple partners, many adolescents perform other risk-taking behaviours, such as unhealthy attitudes and behaviours regarding dietary health and body image. Such attitudes and behaviours may be indirectly related to sexuality in that it may reflect the need to achieve a more socially and sexually desirable physical appearance (Pryon & Wiederman, 1998). For example, females suffering from eating disorders often express concerns over their self-concept, self-esteem, and sexual acceptance. Unhealthy dietary behaviours and attitudes affect both genders; for males there is often a desire to lose weight while gaining muscle mass. According to O'Dea and Abraham (2002), one fifth of males they studied were worried about their weight and shape so they engaged in food restriction, excessive exercising, binge-eating, and purging.

Researchers have strived to explain why adolescents engage in risk-taking behaviours. One possible explanation includes Elkind's (1967) notion of egocentrism.

> Adolescent egocentrism refers to the heightened self-consciousness of adolescents that is reflected in their belief that others are as interested in

> them as they themselves are, and in their sense of personal uniqueness. (Santrock, 1996, p. 122)

Elkind further dissected the concept of egocentrism to involve the personal fable. The concept of personal fable is that adolescents believe they are essentially indestructible and that negative things cannot happen to them, so their risk-taking behaviours are not perceived as health-compromising or self-harming. For example, an adolescent would have unprotected sex or multiple partners and believe that negative consequences such as sexually transmitted diseases or pregnancy could not happen to him or her.

Adolescent sexual activities often can be considered to be risk-taking behaviours due to the possible outcomes of those actions. Research shows that many adolescents engage in sexual risk-taking behaviours such as unprotected sex, drug and alcohol use before sexual intercourse, and numerous sexual partners (Kotchick, Shaffer, Forehand, & Miller, 2001). These actions may have serious consequences such as the contraction of sexually transmitted diseases or pregnancy, which in turn may lead to a decrease in achievement levels and school attendance (Kasen & Cohen, 1998; Manlove, 1998). A female adolescent whose body and mind have been changed due to pregnancy and/or an abortion may resort to disordered eating and have negative consequences on an adolescent's sense of self and body image (Bolden & Williams, 1995).

Adolescents may also place their dietary health at risk by participating in self-harming behaviours such as disordered eating (Jones, Bennett, Olmstead, Lawson, & Rodin, 2001). Such self-harming behaviours may place adolescents at risk for serious health-compromising illnesses as well as serious deficits to school performance (Ferraro & Wonderlich, 1997; Symons & Cinelli, 1997; Wolfe, Burkman, & Streng, 2000).

Background to the Problem

The past 10 years reflect an increase in disordered eating and sexual behaviours in adolescence. Regarding disordered eating, over the past 30 years eating disorders have dramatically increased (Tenore, 2001). Although disordered eating and body image concerns do not necessarily predict the development of an eating disorder such as anorexia nervosa and bulimia nervosa, they are warning signals (Striegel-Moore & Cachelin, 1999). In a recent Canadian study, 23% of girls aged 12 to 18 were dieting, as defined by food restriction. The group that appeared to be at greatest risk was 15-year-olds, who report the highest proportion of dieters, binge eaters, purgers, and users of diet pills, diuretics, and laxatives (Jones et al., 2001).

Similar to unhealthy dietary practices, sexual activity among North American teens appears to be on the rise. In the 1980s, 25% of grade 9 and 50% of grade 11 students reported being sexually active in Canada (King et al., 1988; Trussel & Vaughn, 1991). Currently the estimated Canadian number of sexually active adolescents is 27% for 15-to-17-year-olds, and 53% are reporting to have had more than one sexual partner (Fisher & Boroditsky, 2000). In the United States, 22% of adolescents are reported to have uninitiated sex before the age of 13 (Grunbaum et al., 2000). These sexual practices have ramifications, such as contracting a sexually transmitted disease or pregnancy.

In Canada, it was reported that only 58% of sexually active females and 37% sexually active males use contraception during intercourse during adolescence (Herold, 1984). Although contraception use has risen since the 1980s to 76% in 1995, 33% of adolescents report a decline in contraceptive use after their initial sexual experience (Terry & Manlove, in press). According to health reports for Statistics Canada (1997),

teenage pregnancy rates have also risen from a low of 41 per 1000 births in 1987 to 47 per 1,000 births in 1995.

Statement of the Problem

Research suggests that some adolescents engage in risk-taking behaviours such as health-compromising dietary and sexual practices. These health-compromising behaviours may place the adolescent in danger of a multitude of consequences including pregnancy, sexually transmitted diseases, decreased school performance, school drop-out, a variety of health-related illnesses, and death in some extreme cases (Grunbaum et al., 2000; Neumark-Sztainer, Story, Dixon, & Murray, 1998; Symons, & Cinelli, 1997; Walker, Grantham-McGregor, Himes, Williams, & Duff, 1998). Although recent research shows an increase in adolescent risk-taking, researchers have been unable to explain why some teens engage in behaviours that involve a level of risk (Langsford, Douglas, & Houghton, 1998; Rolison, 2002). The question remains, why do some, but not all, adolescents appear to purposefully choose to participate in self-harming?

Unfortunately, there remains a lack of agreement regarding explanations of this rise of risk-taking. For example, according to the theory of planned behaviour there are a number of influencing factors associated with the intention to engage in behaviour such as using contraception. These factors involve the attitude towards the behaviour; the perception of the subjective norms such as the perception of social pressure; and the perceived behavioural control such as the belief in the ability to enact their intentions (Tolman, 1999). Therefore, an adolescent who engages in unhealthy dieting may do so because her or his attitude towards the behaviour is not negative, she or he believes that their friends condone such behaviours, and she or he believes that they are able to

perform these behaviours. In contrast, Jessor's problem-behaviour theory is based on a psychosocial framework that focuses on three explanatory systems: personality system, perceived environment system, and behaviour system. Within each of these three systems, the explanatory variables reflect either instigators to problem behaviours or controls against the behaviour. Together they generate a likelihood of occurrence of normative or problematic behaviours (Jessor et al., 1995).

As some researchers suggest, this increase in risk-taking may be due to the fact that adolescents do not believe that these behaviours may compromise their health or be harmful to themselves. That is, the perception of what is a risk-taking behaviour and the engagement in risk-taking behaviours are not always related. Adolescents' attitudes towards a risk-taking behaviour and their perceived control over that behaviour are believed to be able to predict intentions to engage in a behaviour (Nahom et al., 2001; Tolman, 1999). Research suggests that adolescent females may contemplate a sexual risk-taking behaviour, assign values to different aspects of the situation, and depending on the outcome of the evaluation, engage in those behaviours (Tolman).

Purpose of the Study and Research Questions

The purpose of this study was to explore adolescents' reported sexual and dietary health behaviours, body image concerns, and whether or not they perceive such behaviours as health compromising. The connections among these variables were also examined for gender and age differences. It was hoped that such an exploration would help educators and researchers to further understand why adolescents engage in particular risk-taking behaviours.

This current study offers a variety of implications and opportunities to the learner, educator, curriculum development, as well as future research. By exploring adolescent current perceptions, this study described students' thoughts on issues such as sexuality and eating disorders. In the secondary school setting, such topics are normally kept within the "hidden curriculum" and kept silenced (Sambell & McDowell, 1998; Wren, 1999). An example of this is the adolescent female's drive to be thin. This study may help provide the impetus to develop a more explicit health curriculum that addresses sex and dietary health.

The hidden curriculum is a widely known term referring to the shadowy and ill-defined nature of what is implicit and embedded in education experiences (Sambell & McDowell, 1998). The hidden curriculum of sexual health is a potent and generally unaddressed phenomena (Sears, 1992). Currently, the school curriculum is structured with explicit, consciously planned course objectives in mind, leaving little room for student independence (Wren, 1999). There is an overemphasis on rational decision-making and the failure to explore the psychological emotional issues associated with sexuality and the language of intimate sexual communication (Sears).

The results of this study may benefit teachers by providing some suggestions for creating classroom strategies that could improve students' knowledge regarding sexuality and disordered eating. This research may also provide teachers with the opportunity to utilize the current health and physical education curriculum more effectively and efficiently as well as aid in the development of preventive strategies for eating and body image concerns.

The results of this study may provide a framework for future Ontario heath curriculum on sexuality and body image. The government states that their curriculum will not only foster a healthy lifestyle, but will also improve psychological well-being and self-esteem in the adolescent (Ontario Ministry of Education and Training, 1999). Students, before reaching grade 9, will have been taught about pregnancy, contraception, sexually transmitted diseases, abstinence, as well as nutrition and healthy eating habits (Ontario Ministry of Education and Training, 1998). The Ministry states that in secondary school the adolescent will be able to make "informed decision making related to healthy sexuality" (Ontario Ministry of Education and Training, 1999, p. 2). It is hoped that the present findings on students' reported sexual and dietary health risk behaviours may be used to promote future curriculum development.

This study aimed to help fill some of the gaps in the developmental psychology and education literature. The results of this study also aimed to help further the discourse on adolescent risk-taking, particularly adolescent sexual behaviours and dietary practices. In addition, this study may help to promote future curriculum development within sexual education and physical health education programs. It is my hope that the results will provide support for the need for a more holistic approach to the curriculum that would empower students to be more involved in their education (R. Miller, 2001). The holistic approach would teach students useful techniques that can be taught to adolescent females and males to deal with some underlying issues that lead to risk-taking, such as emotional or self-concept issues (Bosacki, 2001).

This study explored adolescents' perceptions of risk-taking including sexual and dietary behaviours and the possible connections between the two. In addition, this study

examines if there are gender and age differences in sexual risk behaviours, dietary health risk behaviors, and perceptions of risk-taking.

Definitions of Terms

Body image: perceptions, thoughts, and feelings a person has about his or her physical appearance (O'Dea & Abraham, 1999).

Disordered eating: eating habits and practices, such as dieting, binging, or purging, that compromise one's own overall health, but not necessarily at the extreme level of eating disorder (O'Dea & Abraham, 1999).

Resilience: ability to recover or return from a stressful situation or event (Krovetz, 1999).

Risk-taking behaviour: "a range of behaviours which place adolescents at physical, social and emotional risk" (Levitt & Selman, 1996, p. 202). These risk-taking behaviours may include disordered eating and sexual intercourse without contraception.

Sexual risk-taking behaviour: sexual behaviours which "place individuals involved at substantially greater risk of HIV infection, sexually transmitted diseases, and pregnancy" (Donohew et al., 2000, p. 1081).

Perception of risk-taking behaviour: for the purposes of the current research study this term refers to the adolescent's reported perception of certain behaviours as compromising one's health or harmful to oneself.

Rationale

The rationale for this study is that there is a lack of research on relations between sexual risk behaviours and disordered eating and body image. In particular, little is known about the adolescent male's dietary health and male's body image concerns.

These areas of research also tend to overlook how risk behaviours such as disordered eating and health-compromising sexual practices affect school experiences for the adolescent (O'Dea & Maloney, 2000).

This study examined the areas of dating and sexual activity and dietary health. The dating and sexual activity topic consisted of several important variables including sexual behaviours, contraceptive use, abstinence, pregnancy, and number of sexual partners. Dietary health consisted of weight and body image concerns, as well as eating and weight control habits.

Theoretical Framework

This research examined sexual and dietary behaviours in adolescents. During adolescence, there begins a time of transition in self-development when adolescents struggle to develop an independent sense of self: one that explains, "Who am I?" This sense of self has a great impact on many domains of the adolescents' self-concept, such as scholastic, job, and athletic competence, peer acceptance, close and romantic relations, conduct/morality, and global self-worth (Harter, 1999).

During adolescence, sometimes self-questioning leads to insecurity and self-doubt, which may in turn lead to risk-taking behaviours including unhealthy eating or sexual risk-taking (Tolman, 1999). Inquiries into adolescent risk-taking behaviours have become complicated in recent years with explanations involving biological predispositions, sociocultural factors, and psychosocial influences (Levitt & Selman, 1996). Explanations for actions are not always direct or easily explained. An adolescent with antisocial friends may not engage in risk-taking behaviours even though an

adolescent in their demographic is statistically more likely and at a greater risk for doing so (Jessor et al., 1995).

Therefore, what is the relation between the perception of risk-taking behaviours and the behavioral outcomes? The theory of planned behaviour postulates that an adolescent's attitude towards a behaviour and perceived behavioral control in regard to that behaviour can predict intentions to engage in a behaviour (Tolman). This theory, however useful, cannot accurately predict behavioural outcomes at all times. There are external factors such as time, opportunity, and dependence on cooperation of other people that may affect an adolescent's involvement in risk-taking behaviour. Therefore, even though some adolescents may experience social pressure to engage in self-harm, some adolescents may not engage in high-risk behaviours.

Methodology and Research Procedure

This study analyzed the data already collected by the Youth Lifestyle Choices / Community University research Alliance (YLC-CURA). YLC-CURA is a research group in southern Ontario that partners Brock University with several community agencies with the goal of better understanding resilience and youth lifestyle choices. This alliance offers opportunities in research as well as training and intervention. Data for this large-scale, longitudinal study were collected during the 2000-2001 school year. This collection was for the first of a 3-year study. Researchers administered a self-report questionnaire to children in grades 5, 7, 9, 11, and OAC within a southern Ontario region.

This research is a secondary data analysis with a cross-sectional design that examines a subsample of grades 9, 11, and OAC female and male students taken from a

larger 3-year study. Upon final collection and input of the research, analyses were completed on composite variables that reflected dietary health, dating and sexual activity, and perceptions of risk-taking behaviours. Several sets of analyses were conducted to investigate the links between adolescents' sexual and eating behaviours, their attitudes towards themselves and their sexuality, and their perception of their activities as risk-taking.

Importance of the Study

This study is significant in that it explores and helps to unpack the complex relation between adolescent reported sexual and dietary health risk-taking behaviours. Despite some research on this subject, there is a need to further investigate this area, particularly the gender differences across ages.

The study provides a greater understanding of the adolescent and the relation between their sexual practices and dietary heath behaviours. The results of this study may further the discourse in psychology and education literature on adolescence. This research is also important in that it will help further our understanding of adolescent risk-taking behaviours and attitudes.

Teachers may be able to use results from this study to aid in the creation of classroom strategies that could improve students' knowledge regarding themselves and their sexuality and health. Adolescents may be able to use results from this study to encourage self-reflection regarding their personal risk-taking behaviours. Such reflection may encourage them to voice their thoughts on sensitive issues that are not openly addressed within the classroom and regular curriculum. Thus, this study may promote

development of curricula aimed to foster a healthy attitude toward one's own body and one's sexuality.

The results of this study may further development of sexual health education curriculum. The results will be of use to adolescent/youth counsellors and practitioners in the area of psychology to aid in the further understanding of adolescent behaviour. This study may also aid in the development of preventive strategies for eating and body image concerns. The current study can influence curriculum design for sexual and health education, as well as aid in development of treatment programs for adolescents who experience sexual and eating disorder issues. It may also be useful in the future in helping organizations such as AIDS advocate/education groups, Planned Parenthood, Eating Disorders Shared Awareness, and the Bulimia Anorexia Nervosa Society more effectively convey their messages.

Scope and Limitations of the Study

The present study focused on adolescents' reported sexual behaviour and their health habits and their perception of these behaviours as risk-taking. There are some limitations to the current research. Due to ethical reasons, the study focused exclusively on grade 9 to OAC, which means that the younger adolescent populations (ages 10/11-13) were ignored. This is limiting because it was possible that the younger participants, preteens and preadolescents, could have offered some more insights into age development of sexual and dietary health risk-taking behaviours.

There is also the problem that plagues most sexuality research (Baumeister & Tice, 2001). Males tend to exaggerate their behaviour to conform to social desirability. That is, males may claim to be more sexually active then they actually are, thereby

inflating their scores. In contrast, females tend to underestimate their sexual practices in order to conform to socially desirable standards for women (Baumeister & Tice).

The portions of the questionnaire that were examined for this research study were created by the YLC-CURA research team. These portions were adaptations and collaborations of past research. Therefore, these questionnaires are potentially lacking in internal consistency that would be checked through prior research, which is essential for research studies.

This study was also a survey-based study that relied on a quantitative analysis; thus it did not include more interpretive methods such as in-depth interviews or narratives (Tolman & Szalacha, 1999). The problem with self-report questionnaire is that is prone to self-report biases. Survey data have also two other limitations. The sample studied may not be representative of the entire population (Matlin, 1992). Due to the broad range of schools used, this limitation is largely controlled for; however, there is a possibility that minority populations may have been underrepresented in this study. Another limitation is that people may not recall information accurately (Matlin). However, to address this problem, many questions about present-day situations or recent events were asked.

Outline of Remainder of Document

Chapter Two familiarizes the reader with the current research on adolescent sexual practices, adolescent dietary health behaviours, and adolescent risk-taking and risk-perception. Gender differences in these subject matters are discussed. Chapter Three explains how analysis of Youth Lifestyle Choices-Community-University Research Alliance (YLC-CURA) data made it possible to effectively explore the topic of

adolescent sexuality and eating and body image concerns. The instrumentation used in acquiring the data is explained. In Chapter Four, the results of the research findings and their interpretations are described. Any appropriate tables and charts are included here. Chapter Five provides a summary of all of the findings as well as a discussion of the implications of the findings to future educational practice and research. Recommendations to the Ministry of Education and for future researchers are discussed.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

Introduction and Outline of the Chapter

This chapter provides a brief look at past research in the fields of adolescent sexuality and dietary health. Research on risk-taking in adolescence as well as its relation to sexuality, dietary health, and education are discussed. The chapter concludes with suggestions for future research based on gaps noticed in the literature, and a description of the present study.

Risk-Taking in Adolescence

Self-questioning during adolescence sometimes leads to insecurity and self-doubt; this in turn may lead to risk-taking behaviours including excessive dieting, or sexual risk-taking (Tolman, 1999). Inquiries into adolescent risk-taking behaviours have become complicated in recent years with explanations involving biological predispositions, sociocultural factors, and psychosocial influences (Levitt & Selman, 1996).

The theory of planned behaviour postulates that an adolescent's attitude towards a behaviour, and perceived behavioural control in regards to that behaviour, can predict intentions to engage in a behaviour (Tolman, 1999). This theory, however useful, cannot accurately predict behavioural outcomes at all times. There are external factors such as time, opportunity, and dependence on cooperation of other people that may affect an adolescent's involvement in risk-taking behaviour.

In contrast, Jessor's problem-behaviour theory is based on a psychosocial framework that focuses on three explanatory systems: personality system, perceived environment system, and behaviour system. Within each of these three systems, the explanatory variables reflect either instigators to problem behaviours or controls against

the behaviour. Together they generate a likelihood of occurrence of normative or problematic behaviours (Jessor et al., 1995).

Adolescence is defined as the developmental period that is the transition time from childhood to adulthood. It is entered into at approximately 10 to 12 years of age and ends sometime between 18 and 22 years (Santrock, 1996). This is a pivotal time in development including self-views and behaviours. For example, during adolescence, there is the development of abstract thinking, introspection, and self-reflection. Adolescents are compelled to differentiate their own attributes and behaviours into multiple role-related selves (Harter, 1999). Since the majority of adolescents have not yet acquired the skills necessary to create an integrated self-portrait, they may experience conflict over self-attributes in different roles that seem contradictory. This in turn may create more confusion over which role is the real self (Harter).

According to some researchers, adolescents may also experience a time of perceived invincibility. This concept, deemed the "personal fable", finds adolescents believing that negative consequences to risk-taking actions cannot happen to them (Elkind, 1967). This feeling of invincibility is often accompanied by a lack of appreciation of the ramifications of their actions.

For an adolescent, there are a number of pivotal developmental issues that are being dealt with during their teenage years: the development of the self-identity, their concern with body image, their seeking peer acceptance, their emerging sexual identity, and their experimentation, differentiation and push for independence (Leitch, 1998). These issues often impact on adolescent decision-making processes for risk-taking behaviours.

Research has discovered that two of the top five health-compromising behaviours that impact school performance include dietary behaviours and being involved in sexual behaviours which could result in pregnancy (Symons & Cinelli, 1997). The following literature review discusses sexuality and dietary health, body image concerns, and risk-perception in relation to the adolescent, each other, and education.

Risk-taking behaviours exist everywhere. They are prevalent in all socioeconomic and racial/ethnic groups, and they increase throughout adolescence (Langsford et al., 1998). Many adolescent risk researchers have asked whether adolescents perceive themselves as invulnerable or whether they simply fail to see their actions as health-compromising (Cohn, Macfarlane, Yanez, & Imai, 1995). Unfortunately there is no clear or definite answer to this question. For example, Cohn et al. compared adolescents to adult risk perceptions. Their results indicated that many adolescents do not view their actions as extremely health compromising or unsafe and feel they can periodically be involved with these risk-taking practices without consequences. In contrast, adults reported these activities as being significantly more harmful to the teenagers than the teenagers did themselves.

There are a variety of factors that are believed to be involved in the puzzle of what makes many adolescents take risks. The family structure is considered to be one of the most influential factors in the adolescent's life. Adolescents from fractious families are potentially at a greater risk for school dropout and are more likely to be engaging in risk-taking behaviours (Wade & Brannigan, 1998). The influence of the family, however, can be moderated by a strong attachment to school by the adolescent, but this positive

influence may be counteracted by peers reinforcing the risk-taking behaviours (Wade & Brannigan).

Despite being taught at school that actions such as unsafe sexual practices and disordered eating habits, are unsafe, teenagers continue to engage in these health-compromising practices (Abalbjarnardottir, 2002). Those adolescents who report engaging in risk-taking behaviours report less fear of risk, less serious expected effects, more personal control, and less ability to avoid the activity (Abalbjarnardottir).

Risk-taking can be defined as "a range of behaviours which place adolescents at physical, social and emotional risk" (Levitt & Selman, 1996, p. 202). It has also been seen as the combination of: (a) the risk-taking behaviour could lead to more than one outcome and (b) some of the outcomes are undesirable and dangerous (Byrnes, Miller, & Schafer, 1999). Risk-taking to many is considered simply a part of maturation and therefore should not be avoided (Byrnes et al.; Ponton, 1998). Adolescent males were more likely than females to take risks, and the males continued to take risks even when it was clear that it was a bad idea to take the risk. Females on the other hand were more likely to not take risks even when it was a good idea to take the risk (Byrnes et al.).

Denscombe (2001) conducted a study on adolescent risk-perception and risk-taking following the adolescent witnessing the consequences of risk-taking firsthand, such as the death of a family member from lung cancer after years of smoking. Denscombe found that the adolescents that did experience these firsthand accounts were more likely not to partake in similar risk-taking activities and perceived these activities as more of a risk. These perceptions are not fixed, as adolescents often place physical

appearance above physical health and place social acceptability above personal longevity (Denscombe).

Sexuality

The study of human sexuality possibly began in the early nineteenth century with the discovery of sperm in semen by Anton van Leeuwenhoek (Hyde & DeLamater, 1997). Humans are animals and all animal species display sexual behaviours (Hyde & DeLamater, 1997). Today, cultures all over the world are studied extensively regarding sexual views and practices across all ages.

There is some controversy regarding the definition of sex. For example, is sex only penile-vaginal penetration? If so, do homosexuals never engage in sex? In a study conducted by Saunders and Reinisch (1999), undergraduate students were asked if they believed they "had sex with someone if the most intimate behaviour they had engaged in was ...." (p. 276). The behaviours listed were deep kissing, contact with breast/nipples, genital touching, oral contact with genitals, penile-anal intercourse, and penile-vaginal intercourse. The results showed that almost everyone agreed that penile-vaginal intercourse did constitute sex, but surprisingly only 40% said that oral-genital contact was having sex. The results of this study suggest that the definition of sex may be contingent upon the culture and population.

Current research into sexual behaviour has taught us that "sex" does not necessarily mean intercourse (Baumeister & Tice, 2001). There are a wide variety of sexual practices available to express physical pleasure or caring for someone. In the current research study, the YLC-CURA questionnaire addressed issues of intercourse, oral-genital sexual contact, sexual petting, and kissing. With risks such as sexually

transmitted diseases and unwanted pregnancy it is important to have a clear understanding of the topic and options (Kelly, 1994).

Due to the social desirability of sexual practices, males tend to over-exaggerate their sexual history while females tend to underestimate (Baumeister & Tice, 2001). It is also interesting to see the number of sexual partners males and females claim they would like to have. For example, in a recent survey, when asked how many sexual partners men and women would like to have, women reported a mean of 2.7 partners, compared to men who reported a mean of 64 partners (Baumeister & Tice). To control for outliers, the medians of the samples were also examined. Of interest, at that point both men and women reported a median of one sexual partner each, suggesting that some men reported extreme scores of 1,000 or more partners. In relation to the current research study, because the YLC-CURA questionnaire asked adolescents to report the number of partners they have been with both during their lifetime and during the last month, perhaps the numbers were inflated for boys.

Adolescent Sexuality

Theoretical Explanations

The concept of adolescent sexuality is not revolutionary. Within documented history, adolescents have engaged in sexual actions and behaviours (Santrock, 1996). It is believed that children as young as 10 years old begin to experience sexual attraction (McClintock & Herdt, 1996). It should therefore not be a surprise that during adolescence many teens begin their sexual exploration. The question asked by many researchers, educators, and families is why do some adolescents engage in health-compromising sexual behaviours.

Researchers have developed several possible explanations. Biological and genetic theories suggest that the development of sexual hormones, especially the increase of testosterone, drive adolescents to engage in sexual activities (Halpern, Udry, & Suchindran, 1997; Leigh, Weddle, & Loewen, 1988; Santrock, 1996; Udry & Billy, 1987; Wyatt, 1989).

In contrast to biological theories, cultural and social influences are also hypothesized to affect the amount of sexual activity in adolescence. Family and community values regarding sexuality may influence the adolescent's sexual choices (Santrock, 1996). For example, an adolescent who comes from a cultural background of sexual exploration or sexual repression may become predisposed to follow such values. It is also believed that the influence of peers during adolescence plays a pivotal role in adolescent sexual decision-making. For example, peers have the ability to influence through social pressure or through role modeling (Christopher & Cate, 1984; DeGaston, Weed, & Jensen, 1996; B. C. Miller & Moore, 1990; Whitaker & Miller, 2000).

In line with the socio/bio/cultural theory, the adolescent personal fable suggests adolescents believe that they are invincible (Elkind, 1967). This theory would explain a lack of contraceptive use in adolescence because they believe pregnancy and sexually transmitted diseases cannot happen to them. During this time in adolescence there are struggles of inner instability and an incoherent sense of self that may influence the adolescents' involvement in risk-taking behaviours (Levitt, & Selman, 1996).

Empirical Evidence

The tumultuous time of adolescence may lead some to take risks with their health (Greene & Kicmar, 2000). Research shows that some adolescents engage in health-

compromising sexual behaviours. These behaviours can include multiple partners or unprotected sexual activity to prevent sexually transmitted diseases or pregnancies.

Number of partners. Often adolescents falsely believe that if they are in a monogamous relationship they are safe from sexually transmitted diseases. This erroneous belief leads many to become involved in serial monogamy where they are involved in numerous faithful sexual relationships one after another. This activity places the adolescent at increased health risk, as they are unknowingly sleeping with all of their sexual partners' previous partners (Kraut-Becher & Aral, 2003; Luster & Small, 1994).

As noted, research has shown that adolescent males report higher numbers of sexual partners than their fellow female students. Furthermore, adolescent males report they frequently neglect to use birth control in their sexual relations (Moreau-Gruet & Ferron, 1996). Adolescent males are also more likely to be classified as sexual adventurers, meaning they frequently change sexual partners. Sexual adventurers generally have lower grades and are engaged in other risk-taking behaviours such as drug use (Luster & Small, 1994).

According to Tolman (1999), adolescent females seem to have a complex relation between their sense of self and their sexual behaviours. This is perhaps because the adolescent female is struggling between the roles of the sexual self and the perception of female's asexuality. Unfortunately, the consequences of risk-taking sexual behaviour, such as pregnancy, poor health and nutrition, adverse school performance, and body image concerns, have severe implications for adolescent females (Tolman).

Similarly, in Goff and Goddard's (1999) study on values and related adolescent problem behaviours, 544 students from two rural southern high schools were surveyed

and sorted according to their dominant value: sense of belonging, excitement, warm relations, self-fulfillment, being respected, fun and enjoyment, security, self-respect, and a sense of accomplishment. The age of the first intercourse experience for that sample population ranged from 8 to 18. These adolescents were asked about the number of sexual partners. The results indicated that having fewer sexual partners is associated with a sense of belonging, while having more sexual partners is associated with being well respected. Age of first intercourse was not differentiated by dominant value, but rather for frequency of adolescent sexual activity. This activity was inhibited by a sense of belonging and enhanced by warm relations with others. Therefore, it can be inferred that adolescents who report a sense of belonging are less likely to be involved in risk-taking behaviours such as early coitus and increased number of sexual partners.

In an American study called the Youth Risk Behavior Surveillance System (YRBSS), risk-taking behaviours by American adolescents were explored. The YRBSS includes a national school-based survey conducted by the Center for Disease Control and Prevention as well as state, territorial, and local school-based surveys conducted by education and health agencies (Grunbaum et al., 2002). This report summarized results from the national survey, 34 state surveys, and 18 local surveys conducted among students in grades 9-12. The results of the 2001 survey reveal that adolescent males are more likely than their female peers to have had sexual intercourse and have had more sexual partners. Results also found that males are more likely to use condoms than females, and females reported they were more likely to use the birth control pill while in a relation (Grunbaum et al., 2002).

The YRBSS study also found that grade 9 and grade 10 students were also less likely to have sex or to have had 4 or more sexual partners than were the grades 11 and 12 students. The grade 12 students were significantly more likely to have had sex and to have had more sexual partners than grade 11 students. Grade 9 students, however, reported using condoms significantly more often than grade 11 students (Grunbaum et al., 2002). The YRBSS is similar to the YLC-CURA study that was used by this current research. YLC-CURA, like the American YRBSS, is a longitudinal, survey-based research study that studies youth for a greater understanding of their risk-taking behaviours and decisions.

Pregnancy. Unprotected sexual intercourse may unfortunately result in pregnancy during adolescence. Some researchers therefore consider this to be a consequence of sexual risk-taking behaviour (Donohew et al., 2000). Although not all adolescent pregnancies are a result of unsafe contraceptive use, there are a significant number of pregnant adolescents who practice noneffective contraceptive methods, making this behaviour a health concern (Paukku, Quan, Darney, & Raine, 2003).

There is a reported correlation between adolescent pregnancy and high school dropouts, suspensions, and expulsions (Dryburg, 1999; Kasen & Cohen, 1998; Kotchick et al., 2001; Manlove, 1998). Not surprising, this correlation is also linked to delinquency and multiple sexual partners (Kotchick, et al.). Pregnant teens also place themselves at a greater risk for developing health problems including anemia, hypertension, renal disease, eclampsia, and depressive disorders (Dryburg).

Many pregnant adolescents are also turning to abortion. In Canada, recent statistics indicate that abortion has become the most common outcome of teen pregnancy.

For example, Ontario holds the highest teenage abortion rate, with just under 60% of adolescent pregnancies ending in abortion (Dryburg, 1999). Unfortunately there are risks involved with abortions including potential uterine infection or perforation, hemorrhage, or incomplete removal of the uterine contents. Shocking though, some women even attempt self-induced abortions by having enemas, laxatives, pills, herbs, or soap (Crooks & Baur, 1999). For the pregnant adolescent, there was a decision-making process. The adolescent decided to become sexually active, then whether or not to use contraception, and finally, whether or not to bear or keep the child (Coley & Chase-Lansdale, 1998). In the end, abortion can have a long-term physical and psychological consequence on any adolescent. The adolescent will have to weigh the consequences of pregnancy against the risks of abortion (Coley & Chase-Lansdale, 1998).

Sexually transmitted diseases. Another consequence of health-compromising sex may be the contraction of a sexually transmitted disease (Lee, Su, & Hazard, 1998; Luster, & Small, 1994; Parsons & Halkitis, 2000). Although contraceptive use has increased in recent decades, particularly since the introduction of HIV/AIDS, contraception use has been infrequent (Centre for Infectious Disease Prevention and Control, 1999; Terry & Manlove, in press).

In a 1994-1995 survey of adolescents who reported to be sexually active, only around half reported using a condom during their last sexual intercourse experience (Centre for Infectious Disease Prevention and Control, 1999). Fortunately these adolescents appear to be better protected than the 28% of men and women who report having multiple sex partners but did not use a condom the last time they had sex with a nonregular partner (Centre for Infectious Disease Prevention and Control).

According to Health Canada (1999), there is an alarming percentage of adolescent females who are contracting sexually transmitted diseases such as chlamydia and gonorrhea. Females are at a significantly greater risk of contracting a sexually transmitted disease than males simply because of their physical make-up (Hutchinson, 2002). Also, adolescents who are in serial monogamous relations or initiate sex at a younger age are less likely to protect themselves and are more likely to contract a sexually transmitted disease (Hutchinson).

Adolescents who engage in sexual relations are not necessarily taking risks, but those who do not practice safe sex or those who have had multiple partners are at increased risk for pregnancy and sexually transmitted diseases. These consequences not only place those persons at risk, but also place others, such as future sexual partners, at risk.

Dietary Health

Theoretical Issue

According to Symons and Cinelli (1997), sex and dietary health issues are two of the most common risk-taking behaviours. Regarding dietary health, although disordered eating habits and body image concerns do not necessarily equate or develop into eating disorders, extreme cases can further our understanding regarding adolescents' attitudes and behaviour of dietary health and sex. The two most commonly known and studied eating disorders are anorexia nervosa and bulimia nervosa (Brannon & Feist, 2000). The first clear case of anorexia nervosa was described in 1689, but it was not until this procedure of "self-starvation" was coined anorexia nervosa that this disorder started to gain attention (Marshall & Firestone, 1999). Bulimia nervosa, a term used to explain the

binge/purge procedure, has been referred to throughout the ages but was not coined until the 1970s when increasing numbers of women started to seek help for this behaviour (Marshall & Firestone).

Many research studies and theories postulate that the rise in the incidence of eating disorders and corresponding decline of positive body image are in part due to societal pressure from the popular media. For example, in 1967, a 92 lb "Twiggy" not only became the most famous fashion model, but she drove the standard for the new "ultra thin" prepubescent ideal frame. Since that time, the fashion and media industry has been continually criticized for representing unattainable masculine and feminine image ideals (Polce-Lynch et al., 2001; Tenore, 2001).

People with disordered eating often resort to unhealthy diets, diet pills, diuretics, laxatives, and in extreme cases, surgeries such as wiring their jaw shut, removing part of the intestine or stomach, or liposuction (Brannon & Feist, 2000). Although eating disorders are generally seen as a problem during adolescence, children, adults, and even the elderly have been diagnosed with these illnesses (Marshall & Firestone, 1999; Tenore, 2001). The adolescent female is however still the most common victim of disordered eating, body image concerns, and in extreme cases, eating disorders (Striegel-Moore & Cachelin, 1999).

Empirical Evidence

During adolescence, the physical body changes. This is a biological phenomenon called puberty (Hyde & DeLamater, 1997). For many teens, this is very stressful because puberty is often associated with weight gain. This can be traumatic because this weight gain is at odds with the present-day cultural standards of thinness (Striegel-Moore &

Cachelin, 1999). During this time, it is increasingly likely for adolescents, especially females, to begin with disordered eating. According to various theories, female self-esteem is often defined in part by physical beauty. Not surprising, then, when the unattainable beauty standards of today are disappearing with adolescence, many turn towards extreme dieting and unhealthy eating habits to remain thin (Polce-Lynch et al., 2001; Santrock, 1996; Striegel-Moore & Cachelin, 1999).

Adolescent boys are not unaffected by pubertal changes or eating disorders. Romeo (1994) reports that male anorexics are more prone to excessive exercise than dieting. The predicting factors for male anorexia are cultural or media pressures of an ideal male form, low self-esteem, sexual identity formation, and control over their life. Many adolescent male anorexics report having parents who are overprotective or controlling. The disordered eating lifestyle is a way for them to gain control of their lives away from their parents (Romeo).

Another study that examined adolescent males who were being clinically treated for eating disorders found that males are concerned about body image, diet, and exercise, but are often not encouraged to share their concerns (Eliot & Baker, 2001). The researchers believe that through proper guidance from clinicians, coaches, peers, and family members, adolescent males would see these issues as normal. These important figures may provide the males with an outlet of expression before the concerns manifest themselves into health endangering disorders (Eliot & Baker, 2001).

In contrast, for adolescent females one of the most predictive factors for disordered eating is menarche, the first menstruation (O'Dea & Abraham, 1999). The

increase in body fat that occurs during puberty, accompanied by the heightened body dissatisfaction, is related to the development of eating disorders (O'Dea & Abraham).

Seventy-seven percent of 15-year-old adolescent females in Canada reported wanting to change something about their bodies (Health Canada, 1999). This negative body image perception places them at a higher risk for engaging in disordered eating behaviours such as binging, purging, and fasting (Health Canada). Furthermore, results suggest that dieting has become common with adolescent females. Many pubertal and postpubertal girls report being dissatisfied with their weight even when their current weight is within the normal range for their height (Halpern et al., 1999).

In an American study, over one third of adolescent females reported participating in health-compromising methods of weight control such as excessive dieting and excessive exercise, binging, purging, and abuse of laxatives, diet medications, and water pills (Massey-Stokes, 2000). Concerns regarding body weight and body image, coupled with unhealthy weight management, may unfortunately manifest themselves as clinical eating disorders such as anorexia nervosa and bulimia. Eating disorders can produce longlasting effects on an individual's academic performance, interpersonal relations, and overall physical and psychological health and wellness (Massey-Stokes).

The results of the 2001 Youth Risk Behavior Surveillance Survey in the United States showed that adolescent females were more likely than males to excessively exercise, diet, fast, take pills, or induce vomiting in order to lose weight (Grunbaum et al., 2002). Females in general are more at risk for disordered eating behaviours than males (Massey-Stokes, 2000). Grade 9 students were also more likely to excessively exercise or fast than were students in grades 11 and 12 (Grunbaum et al., 2002). It is

estimated that one in four adolescents were currently dieting to lose weight (Grunbaum et al., 2000).

The statistics from the United States appear to be similar to those of Canadian adolescents. In a recent Canadian study, of the data collected on 1,829 adolescent females (Jones et al., 2001), 27% of the Ontario schoolgirls reported disordered eating attitudes and behaviours. Jones and her colleagues surveyed these adolescent females using three surveys. The surveys provided the participants with clear definitions of dieting, binge eating, self-induced vomiting, diuretics use, and diet pill use. Of the entire sample, 47% of the girls reported being dissatisfied with their weight.

Studies suggest adolescents who experience disordered eating may be placing their psychological and physical health at risk, which in turn may affect academic performance. In particular, research shows disordered eating leads to poor nutrition (Grunbaum et al., 2000), which is known to hinder school achievement (Symons & Cinelli, 1997). For example, Jamaican adolescent females were surveyed for school achievement and health and nutrition behaviours (Walker et al, 1998). Four hundred and fifty-two girls participated from a random sampling of nine schools. The results showed that the girls' weights and heights were similar to those of the United States reference population. Although few of the girls were undernourished as a measure by weight and height, hunger was reported to occur at least once a week by 33% of the girls. The results identified that nutritional problems were associated with poor school achievement. Therefore, this research study, which examines adolescent body dissatisfaction and involvement in disordered eating behaviours, may provide educators with a framework to address specific behavioural and educational needs of the students.

Sexuality and Dietary Health

Although little known research has been done regarding the relation among body image, eating disorders and sexuality, it is often assumed and supported through everyday observations that women's sexuality and body image are linked (Weiderman & Hurst, 1998). Although few studies examine body image and sexuality directly, in contrast, many researchers instead examine body size, or facial attractiveness, and its links to sexual opportunity (Weiderman & Hurst). A rare study did examine the body image and sexuality relationship. This study looked at slimness (as defined by the Body Mass Index) and self-rated sexual attractiveness. That study found that the negative connection between BMI and sexual attractiveness was stronger for women than men (Haavio-Mannila & Purhonen, 2001).

It is, however, postulated that, at least for some women with eating disorders, intense body dissatisfaction results in avoidance of sexual activity because of self-consciousness when engaging in sex with a partner (Weiderman, 1996). Females who reported being satisfied with their body image perception reported more sexual activity, more orgasms, and initiated sex more often (Ackard, Kearney-Cooke, & Peterson, 2000). Only 39.8% of women in Ackard et al.'s study reported feeling satisfied with their body image.

Adolescent females often perceive thinness as a requirement for being popular with boys (Halpern et al., 1999). For example, research suggests that many adolescent girls believe that being slimmer than they currently are will make them more successful in dating. This relation exists despite the fact that many of the girls were already within their appropriate healthy weight range (Halpern et al.).

There appears to be a lack of research on the relation between sexuality and health risk behaviours regarding adolescent males (Cohane & Pope, 2001). More research will be needed as disordered eating and related behaviours become increasingly more apparent in adolescent males. For example, recent research suggests adolescent boys engage in health risk behaviours such as taking anabolic steroids and are reporting increased amounts of body image dissatisfaction (Cohane & Pope). The current research study aims to further the discourse of this topic, as males and females were both examined for their reported sexual and dietary health behaviours.

Education, Sexuality, Dietary Health, and Risk-Taking

Unfortunately, the consequences of some risk-taking behaviours may have a negative long-term impact on an adolescents' academic competence and educational future. Adolescent mothers are often found to have a low level of educational achievement, live in poverty, have lower levels of marital stability, have less stable employment, and have greater health problems (Coley & Chase-Lansdale, 1998). Furthermore, adolescent mothers that continue to attend school also report a feeling of alienation at school and a lack of stable career prospects (Coley & Chase-Lansdale).

Education can serve as a buffer or protective factor for risk-taking behaviours. Adolescents that have a strong attachment to school tend to be less likely to engage in risk-taking behaviours (Kirby, 2002; Wade & Brannigan, 1998). Students with an investment in school, who are involved in school, have an attachment to school, or are invested in their school performance tend to delay initiation of sex and are at less risk of pregnancy and childbearing (Kirby). Conversely, students with low academic skills and that have little educational aspirations are less likely to use contraception and therefore

are at greater risk for pregnancy or sexually transmitted diseases (Luster & Small, 1994). Students who engage in disordered eating habits or who use drugs, such as steroids, in order to change their weight also place themselves at a greater health risk. They may find their academic performance is adversely affected or, in extreme cases may need to miss or leave school for medical reasons (Massey-Stokes, 2000).

Educators are in a position to not only educate their students but also help shape the future of their students' health. Sexual health education is unfortunately often taught by teachers who simply have on-the-job training (McKay, Fisher, Maticka-Tyndale, & Barrett, 2001). There is a noticeable need for sexual health education teachers to receive more training in that field. This would offer teachers a wider variety of strategies to more effectively communicate with their students (McKay et al., 2001). It is important for educators to discover that sexual health education continues to be a potent tool for the prevention of sexually transmitted diseases and pregnancy (Woloshyn & Rye, 1995).

Historically there have been four ideologies: traditionalist, progressive, radical Freudian, and libertarian, that have influenced the way we think about human sexuality within a social context. By extension, that is what we teach about sexuality in school (Carison, 1992). The progression from the traditionalist ideology of "sex as sin" in the first several decades of the 20th century evolved into the progressive ideology of being secular rather than religious in orientation. Progressives were less condemning and believed that rational planning and policy making by the state would solve the social problems of teenage pregnancies and sexually transmitted diseases (Carison). The radical Freudian ideology believed in a nonrepressive sexuality stance and a postcapitalist society. This led to the libertarian ideology of embracing sexual diversity and individual

sexual rights (Carison). While each of these ideologies emerged within a particular period, each has continued to influence the discourse in sexuality education.

In 1994, the Canadian Ministry of National Health and Welfare created a document outlining suggested sexual education guidelines. These guidelines outlined principles that attempt to ensure effective sexual education for Canadian youth. The Ministry believes that sexual education should be accessible to all people and be comprehensive. This means it should address all levels of the issue. Sexual education educators should develop skills that support sexual health and develop a critical awareness. These educators should be well trained and armed with administrative support. Finally, the Ministry believes that lessons in sexual health should be planned carefully and be created for specific audiences to ensure maximum impact (Ministry of National Health and Welfare, 1994). These guidelines are not intended to affect specific curriculum, but instead are intended to aid educators in furthering their effectiveness (Ministry of National Health and Welfare).

The Ministry of Education and Training develops curriculum for sexual health education. Unfortunately, since health education is part of the physical education curriculum, students in secondary schools are required to take only one year of health and physical education. Sexual health education is therefore usually limited to grades 1 through 9. Sexual education does begin in grade 1; although it is quite simplistic, it does cover the body parts and their proper names (Ontario Ministry of Education and Training, 1998). In grade 3 students are introduced to the topic of reproduction, and the topic of puberty begins to be taught in grade 5. In grade 9 the student should be able to identify

the factors that contribute to positive sexual relations and be able to explain the consequences of sexual decisions (Ontario Ministry of Education and Training, 1999).

Of interest, despite government assurances that healthy eating is a component of the health education curriculum, secondary school education curricula do not directly address eating disorders nor the topic of nutrition (Ontario Ministry of Education and Training, 1999, 2000). On the other hand, primary education does address nutrition and touches on body image, but fails to address many specific concerns regarding eating disorders (Ontario Ministry of Education and Training, 1998). Optimistically this current research study points out gaps in the current Ministry of Education curriculum and will lead to its improvement.

Future Research and Summary of Research

During adolescence, the body, mind, and hormones of the adolescent are changing and are making it difficult for him or her to adapt or even to keep up. During this time, it is important to try to understand the adolescents' risk-taking sexual and dietary health behaviours. These behaviours have a great impact on the future of these adolescents, especially when negative consequences ensue. Among the possible consequences can be pregnancy or a sexually transmitted disease.

Overall, a large amount of research states that many adolescents do engage in a variety of sexual and dieting behaviours. It is important for adolescents, teachers, and the research community to have a better understanding of these actions (DeGaston et al., 1996; Donohew, et al., 2000; Fisher & Boroditsky, 2000; Jones et al., 2001; Kasen & Cohen, 1998; Kotchick et al., 2001; Terry & Manlove, in press).

Researchers tend to focus on only a few of the more obvious issues of adolescent sexuality, such as condom use, pregnancy, or age at first coitus (Chewning & Van Koningsveld, 1998; Hyde & DeLamater, 1997; Luster & Small, 1994). There is a lack of research surrounding the issue of adolescent abstinence. Researchers try to address why adolescents engage in sexual behaviours but tend to ignore the issue of why some adolescents abstain from sexual activities and from other self-harming behaviours. It may be that the adolescents are motivated by a lack of opportunity, but it may also be by choice. So then, why would an adolescent choose to abstain?

Promiscuity, or increased numbers of sexual partners and sexual activity, during adolescence is another area that remains relatively unexplored. Researchers appear to be uninterested in this area of study. What makes some adolescents engage in sexual behaviours with numerous partners?

Although research shows that many adolescents, especially females, engage in health-compromising dieting behaviours (Jones et al., 2001), there is little known about dieting behaviours and males. The issue of disordered eating and its relation to sexuality also remains largely ignored. Many of the research studies of these topics are well over a decade old and deal with outdated information concerning dieting behaviours, sexual behaviours, and body image (Weiderman, 1996). Past research has also neglected to examine the interrelations between males' disordered eating and sexual behaviours. To date, no studies are known to exist on the connections between disordered eating and sexuality in adolescent males. Such gaps in the research field suggest the need for future research.

The Present Study

Based on the aforementioned literature and empirical evidence, this study explored the links among adolescents' reported sexual and dietary health behaviours and reported perceptions of these activities as risk-taking behaviours. By exploring the perceptions of both girls and boys, this study offers adolescents a voice in sexuality and health issues which are normally not addressed within the current Ontario sexual health curriculum. It is hoped this study will help to fill some existing gaps in the current research and further the discourse in the psychological and educational research in adolescents.

The following research questions were investigated across gender and age (as defined by grades 9, 11, and OAC):

1. Will adolescents differ in reported risk-taking behaviours involving sexuality and dietary health?

2. Does a relation exist between reported adolescent sexual behaviours and reported adolescent dietary health risk behaviours?

3. Will adolescents differ in their reported adolescent risk perceptions and reported risk behaviours?

Hypotheses for Current Research Study:

1, A. Adolescent males will report a significantly higher number of sexual risk behaviours compared to adolescent females. This hypothesis is supported by research conducted by Moreau-Gruet and Ferron (1996), Luster and Small (1994), and Grunbaum et al. (2002) that suggests males are more likely than females to report having sexual intercourse.

B. Adolescent females will report a significantly higher number of dietary health risk behaviours compared to adolescent males. This hypothesis is supported by Massey-Stokes (2000) and Grunbaum et al.'s (2002) research that claims females are more likely than males to excessively exercise, diet, fast, take pills, or induce vomiting in order to lose weight.

C. Younger adolescents will report significantly more dietary health risk-taking behaviours than older adolescents. This hypothesis is supported by Grunbaum et al.'s (2002) research that shows grade 9 students were more likely to excessively exercise than students in grades 11 and 12.

D. Older adolescents will report significantly more sexual risk-taking behaviours than younger adolescents. This hypothesis is supported by research done by Grunbaum et al. (2002) that shows grade 9 and 10 students are less likely to report having sex than students in grades 11 and 12.

2. Adolescents who report involvement in sexual behaviours will also report increased amounts of dietary health risk behaviours. This hypothesis is supported by research by Halpern, Udry, Campbell, and Suchindran (1999) and Weiderman and Hurst (1998) that shows adolescent females perceive thinness as a requirement to sexual/dating popularity.

3. Adolescents who engage in increased amounts of risk-taking behaviours will not perceive these behaviours as risk-taking. This hypothesis is supported by the study on risk-perception by Cohn et al. (1995) that suggests adolescents do not perceive their actions as extremely health-compromising or unsafe and feel they can periodically be involved in these risk-taking practices without consequences.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

Chapter Overview

This chapter explains the way in which the data were collected, recorded, and analyzed throughout this research study. A thorough and comprehensive description of the methodology and procedures used during this quantitative study is provided.

As part of a 3-year longitudinal research study on risk-taking in youth, the Youth Lifestyle Choices-Community University Research Alliance (YLC-CURA) administered questionnaires to students in grades 5, 7, 9, 11, and OAC in the Niagara region. Given that this study was a secondary analysis, data collection was previously performed by the YLC-CURA Brock University Research Team. The present study analyzed and interpreted data from the first year of data collection from a 3-year study. The current study analyzed 600 participants in line with Stevens (1992) to obtain high statistical power.

The dependent variables studied included the demographics of the sample along with the desire to become involved in risk behaviour, the involvement in risk behaviour, risk perception, dietary health, and sexual activity. The independent variables included gender and age (represented by grades 9, 11, and OAC). The plan for data analysis is outlined, followed by ethical issues and limitations of the present study. The chapter concludes with a summary of the research problem.

Participants

Regarding the larger scale, longitudinal study in the first year of data collections, 3,680 female and 3,337 male students participated. Of those 7,017 students, 3,082 males and 3,401 females completed the sexual data portion of the survey. The current research

study involved 600 participants from the YLC-CURA research study. These 600 students were selected by the YLC-CURA data coordinator based on the least missing responses for the variables being investigated in order to avoid missing data. These students were from grades 9, 11, and OAC, as students in grades 5 and 7 were not asked questions regarding their sexual behaviours. There were 200 student surveys analyzed from each of the three secondary school grades. In each grade, the surveys were evenly split between 100 female and 100 male participants. Therefore, there are overall totals of 300 female (100 grade 9, 100 grade 11, and 100 OAC) and 300 male (100 grade 9, 100 grade 11, and 100 OAC) participants used in this research analysis. The 600 female and male participants in the current study represent 8% and 9% of the survey population respectively.

Research Design and Methodology

This study employed a descriptive, survey method because of its easy distribution to large numbers of participants. Students enrolled in both the Catholic and public school boards in a southern Ontario region participated in this study. The self-report questionnaire was group administered within the schools and took approximately 120 minutes to complete. Students were usually allowed two 60-minute class period sessions for completion. YLC-CURA research staff were at the student sessions to field any possible questions.

To ensure the availability to track students over time, students were asked to complete a name page that was attached to the front of the survey. A unique identification number was reprinted on the name page. Students were then asked to record their name, birth date, and school name on this page, detach it from the survey, and place it in a

circulating envelope that would be picked up by the YLC-CURA research assistant. To ensure confidentiality, the name page was never stored with the surveys.

To obtain permission to conduct secondary data analysis on the YLC-CURA research database, a proposal was submitted to the YLC-CURA research committee for approval (Appendix B). This proposal outlined the present study's research goals, present state of knowledge of the topic, methodology, anticipated results, and the importance or implications of those results, as well as the requested number of survey participants for research analysis. Following approval from the committee, an acceptance letter was obtained from YLC-CURA outlining the approval for use of the research database as well as a copy of the original ethics acceptance from the Brock University Research Ethics Board (Appendixes C and D). Ethical clearance to conduct secondary analysis was obtained through the Brock Research Ethics Board (Appendix E).

Instrumentation

The YLC-CURA multidisciplinary research team created the survey questionnaire that was administered to the southern Ontario region's youths (Appendix A). The present study focused on the following dependent variables: dating and sexual experience, dietary health, and risk perception. To assess these variables, composite variables were created. To check for internal consistency, Cronbach's alpha was conducted on all composite variables.

Dependent Variables

Sexuality

Abstinence. To assess the abstinence from sex question VV7, "How important is not having sex (i.e., abstinence) to you?" was used and measured on a four point Lykert

scale from 1 (very important), to 4 (not at all). Respondents' scores ranged from 1 to 4. Higher scores represented less importance.

Recent sex. This composite variable was created by obtaining a summed score of question VV8 A-D, averaged to obtain a mean score. This question was "In the last 12 months how often have you engaged in the following? A. Kissing a boyfriend/girlfriend, B. Touching a boyfriend's/girlfriend's genitals, C. Touching a boyfriend's/girlfriend's genitals with your mouth, D. Sexual intercourse." The question was measured on a 6-point Likert scale ranging from 1 (never) to 6 (every day). The respondents' answers yielded mean scores ranging from 1 to 6. Internal consistency was high (Cronbach's alpha = .88). Higher scores represented more reported recent sexual activities.

Sexual risk. This composite variable was created by summing questions VV 12 and VV 13. The questions were added together for the scores that are represented in Tables 1 to 6. Question VV 12 is, "During your life, with how many people have you had sexual intercourse?" and VV 13 reads, "During the last month, with how many people did you have sexual intercourse?" These questions were measured on a 5-point scale ranging from 1 person to 5 or more people. Internal consistency was moderate (Cronbach's alpha = .57). Higher scores represented more sexual risk.

STD/Contraception. This composite variable included a summed score from questions VV15 and VV19. VV15 was "over the last 12 months how often have you used a condom during sexual intercourse." This question was measured on a 5-point scale from 1 (always) to 5 (never). Question VV19 was "how many times have you been treated for a sexually transmitted disease (STD)?" This question ranges on a 4-point scale being not sure, never, once, and twice or more. Given that these questions utilized

different scales to score the students' responses, the scores from each question were converted to z-scores and then combined to make the STD/Contraceptive variable. Cronbach's alpha was .17. Higher scores represented more instances of sexually transmitted diseases or less frequent use of contraception.

Sexual risk outcomes. This composite variable was composed of a summed score from questions VV16 and VV19. Question VV16 asked, "How many times have you been pregnant or gotten someone pregnant?" and question VV19 was "how many times have you been treated for a sexually transmitted disease (STD)?" The possible responses to theses questions ranged on a 4-point scale being not sure, never, once, and twice or more. Respondents' answers ranged from 2 to 8. Higher scores represent high sexual risk outcomes. Internal consistency for the variable risk outcomes using Cronbach's alpha is .25.

Dietary Health

Body image perception. This variable was composed of questions HH1 and HH6. HH1 asked, "How do you describe your body weight?" and respondents were given the choices of underweight, just right, and overweight. Question HH6 asked, "How good looking would you say you are?" with response choices of: very good looking, good looking, somewhat good looking, and not good looking. Since these questions utilized different scales to score the students' responses, the scores from each question were converted to z-scores and then combined to make the Body Image Perception variable. Internal consistency Cronbach's alpha for the body image perception was .45. Higher scores represent a more negative body image perception.

Disordered eating. This variable was composed of question HH4, which was, "During the last month, what (if any) method(s) did you use to change your weight?' and the potential responses were: eat more, use laxatives, eat less, exercise, smoke, vomit, steroids, food supplements, and go without eating for 24 hours or more (fasting). Therefore, the higher the response number, the more disordered eating habits the subject engaged in within the last month.

Binge eating / undereating. This variable is Z binge ate/under ate. This question asks how often in the last 12 months the subject binge ate or under ate. This was measured on a 4-point scale of: never, once, a few times, or more than 5 times. Higher scores in this variable represent more binge eating or undereating.

Risk Perception.

Sexual risk perception. This composite variable included questions RR1-7 and RR6-7 summed and averaged. Question RR1 asked, "How health-compromising do you believe it is for you to do the following things?" and Part 1 was about having sex. The question was scored on a five-point Likert scale ranging from 1 (very high) to 5 (very low). Question RR6 asked, "How health-compromising do you believe it is for other people your own age to be doing the following things?" This question was also scored on the same 5-point Likert scale ranging from 1 (very high) to 5 (very low). Higher scores represent less risk perception. That is, the higher the score, the behaviour is perceived as less health-compromising. Cronbach's alpha for the sex risk-perception variable was .68.

Dietary health risk perception. This composite variable included a summed and average score of questions RR1-2 and RR6-2. Question RR1 asked, "How health-compromising do you believe it is for you to do the following things?" and 2 was dieting

constantly. The question was scored on a 5-point Likert scale ranging from 1 (very high) to 5 (very low). Question RR6 asked, "How health-compromising do you believe it is for other people your own age to be doing the following things?" and 2 was again dieting constantly. This question was also scored on the same 5-point Likert scale ranging from 1: very high to 5: very low. Higher scores in this variable represent perceiving dietary health risks as less health-compromising. Cronbach's alpha for the diet risk perception variable was .65.

Independent Variables

The independent variables in this research study included gender (males or females) and age (grade 9, grade 11, and grade OAC).

Data Analysis

Two types of data analysis for this research were conducted: descriptive and inferential. Descriptive statistics (means, standard deviations) were conducted on all main variables. To examine the unique properties of the multidimensional sexuality variables, the dating and sexual activity variables consisted of several important variables that were analyzed independently: sexual behaviours, contraceptive use, abstinence, pregnancy, and number of sexual partners. To examine the concept of dietary health, the dietary health consisted of weight and body image concerns as well as eating habits variable. Risk perception included responses to risk perception for sexuality and health. Following descriptive statistics, correlational analyses were conducted to investigate the links between adolescents' sexual and eating behaviours and their risk perception of their sexuality and health behaviours. Correlational analyses were also performed separately for gender and age.

Descriptive statistics for all main variables were conducted on the entire sample, followed by separate grade and gender analyses. Second, to investigate the age and gender differences, multivariate analyses were conducted on the dependant variables of (sexual behaviour, contraceptive use, involvement in a pregnancy, multiple sexual partners, disordered eating involvement, body image, and risk perception) with age (grade 9, grade 11, and grade OAC) and gender (males and females) as the independent variables.

To examine gender and age effects, MANOVAs and ANOVAs were conducted on all of the main dependent variables. MANOVAs were used in this research because of the complexity that they allow in statistical analyses and because they allow for the examination of simultaneous relation of many variables. The MANOVA is used to document collective effects of many variables and accounting for potentially spurious factors (Sweet & Grace-Martin, 2003).

Sexual behaviour is usually associated with many factors and cannot be explained by the association of a single variable, so by including more than one variable researchers can create a more sophisticated, and often more accurate, model to predict and explain social behaviour. In doing this, MANOVAs also help control for spurious factors, which is when a relation can be explained by a third unmeasured variable (Sweet & Grace-Martin, 2003).

Finally, correlational analyses were conducted to examine the connections among the main dependent variables: sexual behaviour, contraceptive use, involvement in a pregnancy, multiple sexual partners, disordered eating involvement, body image, and risk perception.

Limitations

Adolescence can begin as young as 10 years old, according to Santrock (1996); however, this study was limited in that it explored grades 9 to OAC and did not use participants in grades 5 and 7. Such young participants may have provided valuable insight into perceptions surrounding sexuality, dietary health, and risk perceptions.

There are a series of limitations that plagues sex research and unfortunately this current study is not immune. There is first the issue of non-response. Often there are a certain number of participants who simply refuse or do not wish to participate due to the sensitive and intimate nature of sex research (Crooks & Baur, 1999). This could explain why many of the 600 participants for this study did not answer some of the sexuality questions, lowering the subject numbers.

Conversely there is also the issue of self-selection and a participant's willingness to respond. Studies suggest that those who do participate in sex research tend to be more sexually experience and hold a more positive attitude towards sexuality and sex research than non-participants (Crooks & Baur). Studies have also found that women tend to volunteer less than men for sex research (Crooks & Baur).

The questionnaire was also limited in the fact that it was self-report. People tend to respond to questions in a socially desirable nature in order to please the researcher or in order to present themselves in a more positive way. For example, regarding sexuality, women tend to under-report their sexual activities while men tend to over-report sexual activities (Baumeister & Tice, 2001; Crooks & Baur, 1999).

The YLC-CURA research team created the questionnaire portions that were examined for this research study. Therefore, this questionnaire may be lacking in both

validity and reliability. Due to the time needed to complete this lengthy questionnaire, it was also possible that participants experienced fatigue while completing, which could have possibly resulted in incomplete questionnaires or rushed and inaccurate completions. Fatigue, along with time distance from the incident, of concern means that many participants may not recall information accurately (Matlin, 1992).

Recent public discourse regarding what constitutes "sex" is an important limitation of this study, specifically the behavioural criteria involved in how one defines sexual activity. As Saunders and Reinisch (1999) found, a review of the relevant literature reveals that the general public holds widely divergent opinions about what behaviours are and are not considered sexual. In line with previous research, this current study included behaviours such as: kissing, touching, oral contact, and sexual intercourse to define an all-encompassing sexual behaviour measure (Baumeister & Tice, 2001; Matlin, 1992). With respect to the current study, sexuality is defined as an awareness that we are sexual beings, able to express ourselves through our bodies. It is the embodiment of the self and encompasses our thinking, our feeling, and our behaviour, thus indicating not only the behavioural but also the psychological. However, the lack of consensus with respect to what behaviours constitute sexual behaviours provides evidence for the need to indicate potential limitations specifically that the sexual activities that adolescents report behaving in are too broad and may misrepresent their actual involvement.

This study also includes survey data only, which suggests that data were not obtained from in-depth interviews or narratives (Tolman & Szalacha, 1999). According to Mitchell and Jolley (1996), the problem with survey research is that it is prone to self-report biases. Survey data have also two other limitations. The sample studied may not be

representative of the entire population (Matlin, 1992). The southern Ontario regions are generally homogenous areas of Caucasian background, and it is possible that minority populations were underrepresented in this study.

All of these discussed limitations lend to another concern, which is generalizability. If the tested population is homogeneous, and participants are self-selection how can we be sure that the outcome of this study is reflective of the society at large? Unfortunately the answer is that we cannot. With almost all research there is the risk that the study is not representative but as researchers we control for as many of these variables as possible in order to make the research as generalizable as possible.

Ethical Considerations

The topics of sexuality and personal appearance and dieting habits are quite personal, so there may have been participants who did not wish to participate in the study. The YLC-CURA research team ensured that all student participants were aware that participation is this study was completely voluntary and they did not have to answer any questions that they deemed questionable or invasive. The study was in a questionnaire format so there were no physical requirements of the study, and at no time were researchers alone with an individual participant. As a final gesture, students were provided with names and numbers of agencies in the region that were available to them for advice or help.

Restatement of the Problem

Research shows sexual risk behaviours and disordered eating are on the increase and may place youth at risk for difficulties in school and emotional problems (Ferraro & Wonderlich, 1997; Symons & Cinelli, 1997; Wolfe et al., 2000). To address the problem,

the primary objective of this current research study was to examine the relation between reported adolescent sexual risk-taking behaviours and reported adolescent disordered eating and body image concerns. In particular, this study examined adolescent sexual behaviours and health-related behaviours concerning dieting and body image concerns.

This study offered adolescents an opportunity to voice their thoughts on important issues that are normally silenced within the "hidden curriculum" of the health education program. The results may provide teachers and other adolescent students with some suggestions for classroom strategies that could possibly improve students' knowledge regarding body image, dietary health, and sexuality.

Chapter Summary

This chapter addressed the methodology and procedure that were used in this quantitative, descriptive research study. Participants included 600 of the adolescents in grades 9, 11, and OAC that participated in the YLC-CURA research study. The main purpose of the present study was to describe adolescents' self-reported sexual and dietary risk-taking behaviours and their perception of risk-taking.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

Chapter Overview

This chapter is a description of the present results and their interpretations. Descriptive statistics are discussed, followed by inferential statistics for each of the main variables: sex variables, health variables, and risk-perception. The descriptive statistics include means and standard deviations, and the inferential statistical analysis includes the correlations and multivariate analyses. Finally, each of the hypotheses will be addressed by conducting the appropriate data analyses.

Descriptive Statistics

Tables 1 – 3 show the incidence rates of the sexuality, health and risk perception variables. These tables show the percentage of people, out of those that responded, that chose the risk-taking response. These tables also so the number of people that chose the risk-taking response. Incidence rates are computed for all participants, as well as sorted by gender and by grade.

Sex Variables

As described in Chapter Three, the sex variables that were used in this study included the following the composite variables: abstinence, recent sex, sexual risk, STD/contraceptive use, and sexual risk outcomes. Histograms illustrated a normal distribution of the dependent variable scores. Tables 4 - 15 show the distribution of responses to each question, the mean response, standard deviation, minimum/maximum range, and the skewness of the main dependent variables according to age and gender.

Table 1

Incidence Rate for Sexuality Variables

Variables	All (600) % / n	M (300) % / n	F (300) % / n	9 (200) % / n	11 (200) % / n	OAC (200) % / n
Abstinence *(Not at all important)*	48.5/ 291	50/ 150	47/ 141	37/ 74	46.5/ 93	62/ 124
Recent sex						
Kiss *(every day)*	46.5/ 279	39.7/ 119	53.3/ 160	41.5/ 83	51/ 102	47/ 94
Kiss *(few times a week)*	9/ 174	30/ 90	28/ 84	25.5/ 51	28/ 56	33.5/ 67
Touch *(every day)*	15.5/ 93	17.7/ 53	13.3/ 40	15/ 30	19.5/ 39	12/ 24
Touch *(few times a week)*	36.2/ 217	31.7/ 95	40.7/ 122	25.5/ 49	38/ 76	46/ 92
Oral Sex *(every day)*	9.8/ 59	12/ 36	7.7/ 23	8/ 16	15/ 30	6.5/ 13
Oral Sex *(few times a week)*	25.8/ 155	22.7/ 68	29/ 87	18.5/ 37	28.5/ 57	30.5/ 61
Sex *(every day)*	8.2/ 49	11/ 33	5.3/ 16	7.5/ 15	12.5/ 25	4.5/ 9
Sex *(few times a week)*	22.7/ 136	15.7/ 47	29.7/ 89	7/ 14	27.5/ 55	33.5/ 67
Sexual risk						
Lifetime *(5 or more)*	10.3/ 62	13.7/ 41	7/ 21	10/ 20	12.5/ 25	8.5/ 17
Last month *(5 or more)*	2/ 12	3.3/ 10	0.7/ 2	2/ 4	3/ 6	1/ 2
STD/contraceptive use						
Condom Use *(never)*	11.3/ 68	9.7/ 29	13/ 39	6/ 12	13.5/ 27	7.5/ 15
Condom Use *(less than half)*	4.8/ 29	1.7/ 5	8/ 24		7/ 14	14.5/ 15
STD *(2 or more)*	2.8/ 17	3.3/ 10	2.3/ 7	3/ 6	4/ 8	1.5/ 3
Sexual risk outcomes						
Pregnancies *(2 or more)*	1.8/ 11	3/ 9	0.7/ 2	2.5/ 5	2.5/ 5	0.5/ 1
Pregnancies *(1)*	4/ 24	1.7/ 5	6.3/ 19	0.5/ 1	7.5/ 15	4/ 8

Table 2

Incidence Rate for Health Variables

Variables	All (600) % / n	M (300) % / n	F (300) % / n	9 (200) % / n	11 (200) % / n	OAC (200) % / n
Body image perception						
Weight satisfaction *(overweight)*	22.3/ 134	15.3/ 46	29.3/ 88	23.5/ 47	19/ 38	24.5/ 49
Want to change your looks *(yes)*	65.5/ 393	55.3/ 166	75.7/ 227	64/ 128	65.5/ 131	67/ 134
Self-perception *(not good looking)*	7.5/ 47	6.3/ 19	9.3/ 28	13/ 26	5/ 10	5.5/ 11
Disordered eating *(weight change techniques)*						
Eat more	12/ 72	19.7/ 59	4.3/ 13	9.5/ 19	15.5/ 31	11/ 22
Laxatives	1.2/ 7	0.3/ 1	2/ 6	1.5/ 3	1/ 2	1/ 2
Eat less	37.5/ 225	16.3/ 49	58.7/ 176	35/ 70	37/ 74	40.5/ 81
Exercise	52.2/ 313	45.3/ 136	59/ 177	48.5/ 97	52.5/ 105	55.5/ 111
Smoke	7.5/ 45	2.3/ 7	12.7/ 38	8/ 16	10/ 20	4.5/ 9
Vomit	4/ 24	0.7/ 2	7.3/ 22	5.5/ 11	4.5/ 9	2/ 4
Steroids	1.3/ 8	2.7/ 8		0.5/ 1	1.5/ 3	2/ 4
Supplements	5.7/ 34	4.7/ 14	6.7/ 20	4/ 8	6/ 12	7/ 14
Fasting	7/ 42	1.7/ 5	12.3/ 37	10/ 20	7/ 14	4/ 8
Binge eat/Under eat *(5 or more)*	13.3/ 80	9.7/ 29	17/ 51	15.5/ 31	12/ 24	12.5/ 25
Binge eat/Under eat *(few times)*	21.7/ 130	12.3/ 37	31/ 93	16/ 32	27.5/ 55	21.5/ 43

Table 3

Incidence Rate for Risk Perception Variables

Variables	All (600) % / n	M (300) % / n	F (300) % / n	9 (200) % / n	11 (200) % / n	OAC (200) % / n
Sexual risk perception						
Very upset	4.7/ 28	3.7/ 11	5.7/ 17	8/ 16	2.5/ 5	3.5/ 7
Upset	13/ 78	13/ 39	13/ 39	18.5/ 37	14.5/ 29	6/ 12
Dieting risk perception						
Very upset	12.8/ 77	13/ 39	12.7/ 38	11.5/ 23	14/ 28	13/ 26
Upset	21.8/ 131	21.3/ 64	22.3/ 67	18.5/ 37	20/ 40	27/ 54

Table 4

Descriptive Statistics for All Participants (N = 600)

Variables	*n*	*M*	*SD*	Min	Max	skewness
Sexuality						
Abstinence	588	3.22	.95	1.00	4.00	-1.09
Recent sex	579	3.95	1.40	1.00	6.00	-.58
Sexual risk	379	3.44	1.97	2.00	10.00	1.59
STD/contraceptive use	435	.08	1.54	-3.23	6.63	1.57
Sexual risk outcomes	441	4.14	0.66	2.00	8.00	2.41
Dietary health						
Body image perception	582	0.00	1.61	-3.45	3.55	.34
Disordered eating	404	1.91	.97	1.00	6.00	1.21
Binge eat/Under eat	594	1.92	1.15	1.00	4.00	.69
Risk perception						
Sexual risk perception	589	3.40	1.13	1.00	5.00	-.27
Dieting risk perception	586	2.80	1.17	1.00	5.00	.12

Table 5

Descriptive Statistics for Males (n = 300)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	293	3.20	1.00	1.00	4.00	-1.04
Recent sex	288	3.79	1.48	1.00	6.00	-.41
Sexual risk	178	3.91	2.29	2.00	10.0	1.18
STD/contraceptive use	206	0.02	1.63	-3.23	6.63	1.47
Sexual risk outcomes	206	4.14	.78	2.00	8.00	2.30
Dietary health						
Body image perception	290	-.29	1.57	-3.45	3.55	.44
Disordered eating	175	1.61	.73	1.00	4.00	1.04
Binge eat/Under eat	295	1.60	1.04	1.00	4.00	1.38
Risk perception						
Sexual risk perception	292	3.56	1.17	1.00	5.00	-.38
Dieting risk perception	288	2.90	1.25	1.00	5.00	.58

Table 6

Descriptive Statistics for Females (n = 300)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	295	3.24	.90	1.00	4.00	-1.13
Recent sex	291	4.11	1.28	1.00	6.00	-.75
Sexual risk	201	3.02	1.53	2.00	10.0	1.94
STD/contraceptive use	229	.14	1.46	-3.23	6.63	1.73
Sexual risk outcomes	235	4.13	.53	2.00	7.00	2.26
Dietary health						
Body image perception	292	.29	1.60	-3.45	3.55	.26
Disordered eating	229	2.14	1.06	1.00	6.00	1.04
Binge eat/Under eat	299	2.24	1.16	1.00	4.00	.18
Risk perception						
Sexual risk perception	297	3.25	1.07	1.00	5.00	-.23
Dieting risk perception	298	2.70	1.08	1.00	5.00	.12

Table 7

Descriptive Statistics for Grade 9 (n = 200)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	196	2.92	1.08	1.00	4.00	-.64
Recent sex	194	3.36	1.50	1.00	6.00	-.01
Sexual risk	91	3.82	2.42	2.00	10.0	1.30
STD/contraceptive use	106	-.12	1.51	-3.23	4.21	1.39
Sexual risk outcomes	106	4.16	.81	2.00	7.00	1.59
Dietary health						
Body image perception	194	.15	1.77	-3.45	3.55	.33
Disordered eating	128	1.91	1.01	1.00	5.00	.87
Binge eat/Under eat	197	1.86	1.18	1.00	4.00	.86
Risk perception						
Sexual risk perception	196	3.21	1.26	1.00	5.00	-.09
Dieting risk perception	196	2.30	1.20	1.00	5.00	-.10

Table 8

Descriptive Statistics for Grade 11 (n = 200)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	195	3.29	.82	1.00	4.00	-1.10
Recent sex	190	4.32	1.23	1.00	6.00	-.84
Sexual risk	144	3.42	1.91	2.00	10.0	1.56
STD/contraceptive use	169	.14	1.79	-3.23	6.63	1.61
Sexual risk outcomes	173	4.18	.77	3.00	8.00	2.33
Dietary health						
Body image perception	192	-.15	1.48	-3.45	3.55	.44
Disordered eating	141	1.91	1.07	1.00	6.00	1.55
Binge eat/Under eat	199	1.99	1.14	1.00	4.00	.52
Risk perception						
Sexual risk perception	200	3.43	1.11	1.00	5.00	-.15
Dieting risk perception	196	2.79	1.19	1.00	5.00	.10

Table 9

Descriptive Statistics for Grade OAC (n = 200)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	197	3.45	.86	1.00	4.00	-1.59
Recent sex	195	4.17	1.25	1.00	6.00	-.92
Sexual risk	144	3.21	1.68	2.00	10.0	1.67
STD/Contraceptive use	160	.16	1.24	-.82	6.63	1.49
Sexual risk outcomes	162	4.07	.34	3.00	6.00	3.03
Dietary health						
Body image perception	196	0.01	1.57	-3.45	3.55	.16
Disordered eating	135	1.89	.81	1.00	5.00	.90
Binge eat/Under eat	198	1.92	1.13	1.00	4.00	.70
Risk perception						
Sexual risk perception	193	3.57	.98	1.00	5.00	-.50
Dieting risk perception	194	2.62	1.11	1.00	5.00	.34

Table 10

Descriptive Statistics for Grade 9 Males (n = 100)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	99	3.06	1.10	1.00	4.00	-.88
Recent sex	98	3.38	1.52	1.00	6.00	-.03
Sexual risk	52	4.23	2.49	2.00	10.0	1.06
STD/contraceptive use	61	-.14	1.55	-3.23	4.21	1.35
Sexual risk outcomes	58	4.21	.89	2.00	7.00	1.41
Dietary health						
Body image perception	96	-0.09	1.70	-3.45	3.55	.41
Disordered eating	53	1.47	.67	1.00	3.00	1.11
Binge eat/Under eat	98	1.38	.87	1.00	4.00	2.18
Risk perception						
Sexual risk perception	97	3.47	1.27	1.00	5.00	-.33
Dieting risk perception	96	3.21	1.27	1.00	5.00	-.25

Table 11

Descriptive Statistics for Grade 9 Females (n = 100)

Variables	n	M	SD	Min	Max	Skewness
Sexuality						
Abstinence	97	2.78	1.04	1.00	4.00	-.45
Recent sex	96	3.34	1.48	1.00	6.00	.02
Sexual risk	39	3.28	2.24	2.00	10.0	1.85
STD/contraceptive use	45	-1.00	1.47	-3.23	4.01	1.51
Sexual risk outcomes	48	4.10	.69	2.00	7.00	1.87
Dietary health						
Body image perception	98	.39	1.81	-3.45	3.55	.23
Disordered eating	75	2.23	1.10	1.00	5.00	.48
Binge eat/Under eat	99	2.33	1.26	1.00	4.00	.12
Risk perception						
Sexual risk perception	99	2.95	1.21	1.00	5.00	.10
Dieting risk perception	100	2.80	1.10	1.00	5.00	-.08

Table 12

Descriptive Statistics for Grade 11 Males (n = 100)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	96	3.20	.96	1.00	4.00	-1.00
Recent sex	94	4.28	1.41	1.00	6.00	-.84
Sexual risk	68	3.87	2.20	2.00	10.0	1.33
STD/contraceptive use	77	.14	2.01	-3.25	6.63	1.37
Sexual risk outcomes	81	4.16	.93	3.00	8.00	2.36
Dietary health						
Body image perception	96	-.35	1.40	-3.45	3.55	.52
Disordered eating	61	1.57	.67	1.00	3.00	.75
Binge eat/Under eat	99	1.67	1.10	1.00	4.00	1.27
Risk perception						
Sexual risk perception	100	3.48	1.22	1.00	5.00	-.16
Dieting risk perception	97	2.73	1.25	1.00	5.00	.13

Table 13

Descriptive Statistics for Grade 11 Females (n = 100)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	99	3.38	.65	1.00	4.00	-.81
Recent sex	96	4.36	1.04	1.50	6.00	-.68
Sexual risk	76	3.03	1.51	2.00	8.00	1.54
STD/contraceptive use	92	.14	1.59	-3.23	6.63	1.97
Sexual risk outcomes	92	4.20	.60	3.00	7.00	1.80
Dietary health						
Body image perception	96	0.04	1.54	-3.45	3.55	.34
Disordered eating	80	2.18	1.24	1.00	6.00	1.25
Binge eat/Under eat	100	2.31	1.09	1.00	4.00	-.07
Risk perception						
Sexual risk perception	100	3.38	1.00	1.00	5.00	-.18
Dieting risk perception	99	2.85	1.12	1.00	5.00	.11

Table 14

Descriptive Statistics for Grade OAC Males (n = 100)

Variables	n	M	SD	Min	Max	skewness
Sexuality						
Abstinence	98	3.34	.93	1.00	4.00	-1.28
Recent sex	96	3.73	1.39	1.00	6.00	-.48
Sexual risk	58	3.67	2.22	2.00	10.0	1.16
STD/contraceptive use	68	.02	1.15	-.82	4.01	1.27
Sexual risk outcomes	67	4.06	.38	3.00	6.00	2.26
Dietary health						
Body image perception	98	-.42	1.59	-3.45	3.55	.35
Disordered eating	61	1.75	.83	1.00	4.00	1.04
Binge eat/Under eat	98	1.77	1.11	1.00	4.00	.99
Risk perception						
Sexual risk perception	95	3.73	1.01	1.00	5.00	-.65
Dieting risk perception	95	2.77	1.18	1.00	5.00	.28

Table 15

Descriptive Statistics for Grade OAC Females (n = 100)

Variables	n	M	SD	Min	Max	Skewness
Sexuality						
Abstinence	99	3.56	.77	1.00	4.00	-2.02
Recent sex	99	4.60	.92	1.75	6.00	-1.20
Sexual risk	86	2.90	1.08	2.00	6.00	1.06
STD/contraceptive use	92	.26	1.30	-.82	6.63	1.59
Sexual risk outcomes	95	4.08	.32	4.00	6.00	4.03
Dietary health						
Body image perception	98	.43	1.42	-3.45	3.55	.18
Disordered eating	74	2.00	.78	1.00	5.00	.90
Binge eat/Under eat	100	2.07	1.13	1.00	4.00	.46
Risk perception						
Sexual risk perception	98	3.42	.94	1.00	5.00	-.45
Dieting risk perception	99	2.46	1.01	1.00	5.00	.30

Health Variables

As described in Chapter Three, the health variables used in this study were composite variables including: body image perception, disordered eating, and binge eating/undereating. Histograms reflected normal distribution of dietary health scores. Tables 4 - 15 show the number of respondents to each question, the mean response, standard deviation, minimum/maximum range, and the skewness of the main dependent variables according to age and gender.

Risk Perception Variables

As described in Chapter 3, the risk perception variables used in this study were composite variables including: sexual risk perception, and dieting risk perception. Histograms showed normal distribution of variables. Tables 4 - 15 show the number of respondents to each question, the mean response, standard deviation, minimum/maximum range, and the skewness of the main dependent variables according to age and gender.

Inferential Statistical Analyses

Gender and age main effects. To investigate gender and grade effects among sexuality, dieting, and risk perception, 3 (grade) x 2 (gender) multivariate analysis of variance (MANOVA) was conducted on the composite variables for sexuality, dietary health, and risk perception.

MANOVAs were used in this research because of the complexity that they allow in statistical analyses and because they allow for the examination of simultaneous relation of many variables. The MANOVA is used to document collective effects of many variables and accounting for potentially spurious factors (Sweet & Grace-Martin, 2003).

Social behaviour is usually associated with many factors and cannot be explained by the association of a single variable, so by including more than one variable researchers can create a more sophisticated, and often more accurate, model to predict and explain social behaviour. In doing this, MANOVAs also help control for spurious factors, which is when a relationship can be explained by a third unmeasured variable (Sweet & Grace-Martin, 2003).

Sexuality Variables

The sexuality composite variables: abstinence, recent sex, risk outcomes, STD/contraceptive use, and sexual risk-taking, were examined using the MANOVA, which revealed gender and grade main effects. The MANOVA revealed that for the combined sexuality variables significant gender effects, Wilk's Lambda, .95, $F(1, 597) = 6.62, p < 0.01$, grade effects, Wilk's Lambda, .86, $F(2, 596) = 8.91, p < 0.01$, and gender and grade interaction effects, Wilk's Lambda, .96, $F(2, 596) = 2.27, p < 0.05$. Univariate analyses were conducted following the MANOVA on the five sexuality variables to explore these gender, grade, and interaction effects further.

Abstinence. The MANOVA that was conducted on the abstinence variable revealed significant grade effects, Wilk's Lambda, .86, $F(2, 584) = 16.75, p < .01$, gender by grade interaction effects, Wilk's Lambda, .96, $F(2, 584) = 4.37, p < 0.05$. Univariate analyses were conducted following the MANOVA and revealed similar results with significant grade, $F(2, 584) = 16.79, p < .01$, and gender and grade interaction, $F(2, 584) = 4.45, p < 0.05$, effects. Tukey's HSD revealed that grade 9 students differ significantly from both the grade 11 students and the OAC students ($M = 2.92$, $M = 3.29$, and $M = 3.45$, respectively). Results suggest that grade 9 students

reported abstinence as being significantly more important than both grade 11 and OAC students. Interaction effects showed that grade 9 females report abstinence as being significantly more important than grade 11 females ($M = 2.78$ and $M = 3.38$ respectively). See Table 16 for abstinence MANOVA results.

Table 16

Analysis of Variance for Abstinence

Source	*df*	*F*	η	*p*
Gender	1	.37	.01	.54
Grade	2	16.75**	.55	.00
Gender x grade	2	4.37*	.02	.13
S within-group error	582	(.85)		

** $p < .01$. * $p < .05$

Recent sex. The MANOVA that was conducted on the recent sex variable revealed significant gender, Wilk's Lambda, .95, F (1, 576) = 8.36, p < .01, grade, Wilk's Lambda, .95, F (1, 575) = 30.07, p < .01, and interaction effects, Wilk's Lambda, .95, F (1, 575) = 6.69, p < .01. Univariate analyses were conducted following the MANOVA and revealed similar significant gender effects F (1, 576) = 7.79, p < .01, grade effects F (2, 575) = 29.99, p < .01, and interaction effects F (2, 575) = 6.67, p < .01 for the recent sex variable. Males reported significantly fewer recent sexual activities than females (M = 3.79, and M = 4.11, respectively). Using the HSD, it is revealed that grade 9 students differ significantly from both the grade 11 students and the OAC students (M = 3.36, M = 4.17, and M = 4.32, respectively). Grade 9 students reported significantly fewer recent sexual activities than their grade 11 and OAC counterparts. Upon examining the results for the interaction effects, it is noticed that OAC male and female students differ significantly in their reported recent sexual behaviours (M = 3.74 and M = 4.60, respectively) and that grade 9 females differ significantly from grade 11 and OAC females (M = 3.34, M = 4.36, and M = 4.60, respectively). These results suggest that females compared to males reported more recent sexual behaviours and that there was an increase in these reported behaviours after grade 9. See Table 17 for the recent sex MANOVA and see Tables 3 - 15 for the descriptive statistics for recent sex.

Sexual risk. The MANOVA that was conducted on the sexual risk variable revealed significant gender effects, Wilk's Lambda, .95, F (1, 377) = 19.81, p < .01. Univariate analyses were conducted following the MANOVA and revealed similar significant gender effects for the sexual risk composite variable F (1,377) = 17.48, p < .01. Males reported significantly higher numbers of partners than did their female

Table 17

Analysis of Variance for Recent Sex

Source	*df*	*F*	η	*p*
Gender	1	8.36**	.01	.00
Grade	2	30.07**	.10	.00
Gender x grade	2	6.69**	.02	.00
S Within-group error	573	(1.72)		

** $p < .01$. * $p < .05$

counterparts ($M = 3.91$ and $M = 3.02$, respectively). See Table 18 for the sexual risk MANOVA results and Tables 5 and 6 for the descriptive statistics on gender differences.

STD/contraceptive use. The MANOVA conducted for the STD/Contraceptive use composite variable revealed no significant gender, grade, or interaction effects. See Table 19 for the STD/contraceptive use MANOVA results.

Sexual risk outcomes. The MANOVA conducted for the sexual risk outcomes composite variable revealed no significant gender, grade, or interaction effects. See Table 20 for the sexual risk outcomes MANOVA results.

Dietary Health Variables

The health composite variables: body image perception, disordered eating, and binge eating/undereating were examined using the MANOVA. MANOVAs were used in this research because of the complexity that they allow in statistical analyses and they allow for the examination of simultaneous relation of many variables. The MANOVA is used to document collective effects of many variables and accounting for potentially spurious factors (Sweet & Grace-Martin, 2003).

Social behaviour is usually associated with many factors and cannot be explained by the association of a single variable, so by including more than one variable researchers can create a more sophisticated, and often more accurate, model to predict and explain social behaviour. In doing this, MANOVAs also help control for spurious factors, which is when a relationship can be explained by a third unmeasured variable (Sweet & Grace-Martin, 2003).

Table 18

Analysis of Variance for Sexual Risk

Source	*df*	*F*	η	*p*
Gender	1	19.81**	.04	.00
Grade	2	2.45	.01	.09
Gender x grade	2	.12	.00	.89
S within-group error	373	(3.71)		

** $p < .01$. * $p < .05$

Table 19

Analysis of Variance for STD/Contraceptive Use

Source	*df*	*F*	η	*p*
Gender	1	1.12	.00	.42
Grade	2	1.79	.01	.35
Gender x grade	2	.49	.00	.75
S within-group error	429	(2.38)		

** $p < .01$. * $p < .05$

Table 20

Analysis of Variance for Sexual Risk Outcomes

Source	*df*	*F*	η	*p*
Gender	1	.02	.00	.89
Grade	2	1.28	.01	.28
Gender x grade	2	.34	.00	.71
S within-group error	435	(.43)		

** $p < .01$. * $p < .05$

The MANOVA revealed significant gender effects, Wilk's Lambda, .87 (F = 18.93, $p < 0.01$). Following these results, ANOVAs were conducted on the three health variables to further explore the gender effects.

Body image perception. The MANOVA that was conducted on the body image perception variable revealed significant gender effects, Wilk's Lambda, .87, F (1, 579) = 10.83, $p < 0.01$. Univariate analyses were conducted following the MANOVA and revealed similar significant gender effects F (1, 579) = 18.89, $p < 0.01$. Males reported a significantly more positive body image perception than did their fellow female students (M = -.29 and M = .29, respectively). See Table 21 for the body image perception MANOVA results and Tables 5 and 6 for the descriptive statistics on gender differences.

Disordered eating. The MANOVA that was conducted on the disordered eating variable revealed significant gender, Wilk's Lambda, .87, F (1, 401) = 30.60, $p < 0.01$. Univariate analyses were conducted following the MANOVA and revealed similar significant gender effects F (1,401)= 32.43, $p < 0.01$. Males reported significantly fewer disordered eating habits than the female students (M = 1.61 and M = 2.14, respectively). See Table 22 for the disordered eating habits MANOVA results and Tables 5 and 6 for the descriptive statistics on gender differences.

Binge eating / Undereating. The MANOVA that was conducted on the binge eating / under eating variable revealed significant gender, Wilk's Lambda, .95, F (1, 591) = 36.60, $p < 0.01$. Univariate analyses were conducted following the MANOVA and revealed similar significant gender effects F (1,591) = 49.49, $p < 0.01$ as well as a significant interaction effect F (1,590) = 4.33, $p < 0.05$. Males (M = 1.60) reported significantly fewer instances of binge eating or undereating than did females (M = 2.24).

Table 21

Analysis of Variance for Body Image Perception

Source	*df*	*F*	η	*p*
Gender	1	10.83**	.03	.00
Grade	2	2.35	.01	.10
Gender x grade	2	.49	.00	.61
S within-group error	579	(.86)		

** $p < .01$. * $p < .05$

Table 22

Analysis of Variance for Disordered Eating

Source	*df*	*F*	η	*p*
Gender	1	30.60**	.08	.00
Grade	2	.04	.00	.96
Gender x grade	2	2.85	.01	.06
S within-group error	398	(.87)		

** $p < .01$. * $p < .05$

Interaction effects revealed a significant difference between grade 9 males ($M = 1.38$) and grade 11 males ($M = 1.67$) and OAC males ($M = 1.77$). These results indicate that disordered eating increases in adolescent boys from grade 9 to OAC. See Table 23 for the binge eating/undereating MANOVA results and Tables 4 – 15 for the descriptive statistics for binge eating/undereating.

Risk Perception Variables

The risk perception variables: sexual risk perception and dieting risk perception were examined using the MANOVA, which reveal gender and grade main effects. The MANOVA revealed that for the combined risk perception variables there are significant gender effects, Wilk's Lambda, .98, $F(2, 596) = 6.95, p < 0.01$ and significant grade effects, Wilk's Lambda, .96, $F(2, 656) = 6.72, p < 0.01$. Following these results, ANOVAs were conducted on each of the two risk perception variables.

Sexual risk perception. The MANOVA that was conducted on the sexual risk perception variable revealed significant gender, Wilk's Lambda, .98, $F(1, 586) = 12.06$, $p < 0.01$, grade, Wilk's Lambda, .96, $F(1, 585) = 5.95, p < 0.01$. Univariate analyses were conducted following the MANOVA and revealed similar significant gender effects $F(1, 586) = 11.21, p < 0.01$ and significant grade effects $F(2, 585) = 5.17, p < 0.01$. The gender effects results reveal that males ($M = 3.56$) perceive sex significantly less as a risk-taking behaviour than females ($M = 3.25$). Using the HSD it is revealed that grade 9 students perceive sex as less of a risk-taking activity than the OAC students ($M = 3.21$ and $M = 3.57$, respectively). See Table 24 for the MANOVA results for sexual risk perception and Tables 4 – 15 for the relevant descriptive statistics for sexual risk perception variables.

Table 23

Analysis of Variance for Binge Eating/Undereating

Source	*df*	*F*	η	*p*
Gender	1	36.60**	.08	.00
Grade	2	.42	.00	.66
Gender x grade	2	2.89	.02	.06
S within-group error	588	(1.21)		

** $p < .01$. * $p < .05$

Table 24

Analysis of Variance for Sexual Risk Perception

Source	*df*	*F*	η	*p*
Gender	1	12.06**	.02	.00
Grade	2	5.95**	.01	.00
Gender x grade	2	1.84	.01	.16
S within-group error	583	(1.24)		

** $p < .01$. * $p < .05$

Dieting risk perception. Similarly to the sexual risk perception variable, when the dieting risk perception variable was examined using the MANOVA, the results showed that there were significant grade effects, Wilk's Lambda, .96, F (1, 582) = 5.34, $p <$ 0.01. Univariate analyses were conducted following the MANOVA and revealed significant gender effects F (1, 583) = 4.46, $p < 0.05$ as well as significant grade effects F (2, 582) = 5.34, $p < 0.01$. The gender effects results reveal that males (M = 2.90) perceive dieting significantly less as of a risk-taking behaviour than females (M = 2.70). Tukey's HSD revealed that grade 9 students perceived dieting as less of a risk-taking activity than the OAC students (M = 2.62 and M = 3.00, respectively). See Table 25 for the MANOVA results for dieting risk perception and Tables 5 - 9 for the relevant descriptive statistics for dieting risk perception.

Table 25

Analysis of Variance for Dieting Risk Perception

Source	*df*	*F*	η	*p*
Gender	1	3.77	.01	.05
Grade	2	5.34	.02	.01
Gender x grade	2	2.61	.01	.08
S within-group error	580	(1.34)		

** $p < .01$. * $p < .05$

Correlational Analyses

To explore the relations among the 10 composite variables further, as seen in Tables 26 to 33, Pearson *r* correlations were conducted on the main variables of abstinence, recent sex, sexual risk, STD/contraceptive use, sexual risk outcomes, sexual risk perception, body image perception, disordered eating, binge eating, and dieting risk perception. Table 26 shows the Correlational matrix for the entire sample ($N = 600$). Additional correlational findings that did not directly support the hypothesis testing can be found in Appendix F. There were a number of significant correlations found, including a negative relation between recent sexual engagement and body image perception, $r\ (577) = -.10$, $p < 0.05$. This correlation indicates that students who engaged in recent sexual activities were more likely to have a higher sense of body image perception.

In support of hypothesis 3, recent sexual engagement is also positively correlated with sexual risk perception, $r\ (577) = .34$, $p < 0.01$, and with binge eating and/or undereating, $r\ (577) = .10$, $p < 0.05$. This indicated that students who engage in more recent sexual behaviours perceive sex as less health compromising and are more likely to binge eat or under eat. As well, there is a significant relation between disordered eating, binge eating or undereating, $r\ (402) = .38$, $p < 0.01$, body image perception, $r\ (402) = .19$, $p < 0.01$, and dieting risk perception, $r\ (402) = .13$, $p < 0.01$. These results reveal that students who engaged in more disordered eating habits were more likely to binge eat and/or undereat, have a more negative body image perception, and be less likely to perceive dieting as a risk-taking behaviour.

Table 26

Correlational Analyses Results, All (*N*=600)

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.36**	-.07	-.08	-.10*	-.06	.02	.07	.34**	.02
2. Recent sex		—	.07	.04	-.01	-.10*	-.05	.10*	.34**	.05
3. Sexual risk			—	.15**	-.27**	-.08	-.09	.04	.05	.14**
4. STD/contraceptive use				—	.64**	.02	.08	.02	.01	-.05
5. Sexual risk outcomes					—	-.02	-.00	-.02	.02	.06
Dietary health										
6. Body image perception						—	.19**	.12**	-.15**	.02
7. Disordered eating							—	.38**	.03	.13**
8. Binge eat/Undereat								—	.01	.09*
Risk perception										
9. Sexual risk perception									—	.16**
10. Dieting risk perception										—

** $p < .01$. *$p < .05$

Further support for hypothesis 3 was found in binge eating and/or being positively correlated with dieting risk perception, r (580) = .09, $p < 0.05$, indicating that students who binge eat or undereat more often were less likely to perceive dieting as health compromising.

Gendered correlational analyses. To answer questions regarding gender differences in the sample, Pearson r correlations were conducted on males and females separately, followed by Fisher's z test (See Table 27). In support of hypothesis 3 it was found that males and females both had significant correlations with abstinence and recent sex and sexual risk perception, indicating that both males and females who do not view abstinence as very important are more likely to engage in recent sexual behaviours and are less likely to see sex as a risk- taking behaviour. Females, r (293) = .56, $p < 0.01$, reported a significantly more positive relation than males, r (291) = .21, $p < 0.01$; Fisher's r to z = -57.89 $p < 0.01$. When comparing the correlation abstinence and sexual risk perception, the correlation was significantly more positive for females, r (293) = .44, $p < 0.01$, than for males, r (291) = .26, $p < 0.01$; Fisher's r to z = -23.46 $p < 0.01$.

Table 27

Correlational Analyses Results, Males (n=300) above diagonal, Females (n=300) below diagonal

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.21**	-.12	-.10	-.10	-.05	.02	.02	.26**	-.01
2. Recent sex	.56**	—	.07	-.03	-.04	-.14*	-.15*	.10	.31**	.05
3. Sexual risk	.11	.13	—	.22**	.32**	-.09	-.11	.08	-.04	.09
4. STD/contraceptive use	-.06	.12	.08	—	.71**	.07	.20*	.10	.04	-.00
5. Sexual risk outcomes	-.12	.04	.18*	.57**	—	.05	.08	.03	.02	.07
Dietary health										
6. Body image perception	-.08	-.09	.03	-.05	-.11	—	.17*	.10	-.10	.05
7. Disordered eating	.01	-.04	.01	.01	-.03	.16*	—	.16*	.04	-.04
8. Binge eat/Undereat	.10	.04	.12	-.07	-.07	.05	.42**	—	-.02	-.02
Risk perception										
9. Sexual risk perception	.44**	.42**	.12	-.02	.03	-.16**	.08	.11	—	.13**
10. Dieting risk perception	.06	.07	.18*	-.10	.04	.04	.27**	.26**	.19**	—

** $p < .01$. *$p < .05$

In support of hypothesis 2, results for males found recent sex is negatively correlated with body image perception, r (586) = -.14, $p < 0.05$, and disordered eating, r (173) = -.15, $p < 0.05$. This means that males engaging in recent sexual activities will have a more positive body image perception and engage in less disordered eating habits. As well, sexual risk-taking for males positively correlates with disordered eating behaviours, r (173) = .20, $p < 0.05$, indicating that males who are more likely to get a STD or not use contraception are more likely to be engaging in disordered eating habits. There was no significant relation between these variables for females.

In support of hypothesis 3, recent sex for females and females is found to be correlated with sexual risk perception, r (586) = .31, $p < 0.01$ and r (289) = .42, $p < 0.01$ respectively, so those engaging in recent sexual activities do not view sex as a risk-taking behaviour. This correlation was significantly more positive for females than for males (Fisher's r to z = -17.39 $p < 0.01$). As well, disordered eating is positively correlated with dieting risk perception for females, r (227) = .27, $p < 0.01$. This indicates that for females who engage in disordered eating habits there is a lack of perceiving these behaviours as risk-taking.

In further support for hypothesis 3, for women there is also a relation between disordered eating and perceiving dieting less as a risk-taking behaviour. Females also had a significant correlation between binge eating/undereating and dieting risk perception, r (296) = .26, $p < 0.01$, strengthening the result that females in this binge eating/undereating habit perceive dieting as less of a risk. Sexual risk perception is positively correlated with dieting risk perception for both males, r (286) = .13, $p < 0.05$, and females, r (295) = .19, $p < 0.01$, but for females there is also a negative correlation

with body image perception, r (290) = -.16, $p < 0.01$. These results indicate that males and females who perceive sex as a risk will perceive dieting as a risk, and females who perceive sex as a risk-taking behaviour will also have higher body image perception. No significant differences were found between males and females when sexual risk perception and dieting risk perception correlation was examined.

Grade correlational analyses: Tables 28, 29, and 30 show the analyses done on each of the three grades participating in this study. In support of hypothesis 2, Abstinence was found to be negatively correlated with body image perception in grade 9, r (192) = -.16, $p < 0.05$, indicating that as abstinence lessens in importance, body esteem rises. There is also a positive correlation between recent sexual activity and binge eating or undereating with OAC students, r (193) = .14, $p < 0.05$. This result indicates that students that engage in more recent sexual activities also tend to binge eat or undereat more often. This finding was present for students only in OAC.

Also in support of hypothesis 2, correlations for OAC students found that sexual risk-taking behaviour was negatively correlated with body image perception, r (142) = -.18, $p < 0.05$. This indicates that OAC students who have had more sexual partners are more likely to have a higher body image perception. OAC students also have a positive correlation between STD/contraceptive use and disordered eating habits, r (133) = .22, $p < 0.05$, and binge eating or undereating, r (158) = .17, $p < 0.05$, indicating that OAC students who do not use contraception or have had an STD are also more likely to engage in more disordered eating behaviours and report binge eating or undereating more often.

Table 28

Correlational Analysis Results for Grade 9 Students, Grade 9 (*n*=200)

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.40**	-.10	-.08	-.10	-.16*	-.07	.13	.42**	.02
2. Recent sex		—	.20	-.06	-.04	-.14	-.02	.12	.39**	.11
3. Sexual risk			—	-.03	.15	-.09	-.08	-.14	.03	.32**
4. STD/contraceptive use				—	.73**	-.08	.05	-.01	.06	.03
5. Sexual risk outcomes					—	-.10	-.02	-.08	-.03	.05
Dietary health										
6. Body image perception						—	.19*	.03	-.24**	.06
7. Disordered eating							—	.49**	.05	.23**
8. Binge eat/Undereat								—	-.03	.06
Risk perception										
9. Sexual risk perception									—	.23**
10. Dieting risk perception										—

**$p < .01$. *$p < .05$

Table 29

Correlational Analyses Results for Grade 11 Students, Grade 11 (n=200)

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.16*	.10	-.02	-.03	.03	.04	-.01	.15*	.06
2. Recent sex		—	.18*	.10	-.00	-.05	-.10	-.03	.25**	.15*
3. Sexual risk			—	.30**	.34**	.04	-.13	.13	.14	.05
4. STD/contraceptive use				—	.70**	.08	.00	-.07	-.00	-.13
5. Sexual risk outcomes					—	.02	.00	-.01	.04	.07
Dietary health										
6. Body image perception						—	.21*	.14	-.02	-.00
7. Disordered eating							—	.34**	.09	.03
8. Binge eat/Undereat								—	.07	.09
Risk perception										
9. Sexual risk perception									—	.18*
10. Dieting risk perception										—

**$p < .01$. *$p < .05$

Table 30

Correlational Analyses Results for Grade OAC Students, Grade OAC (*n*=200)

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.36**	-.16	-.24**	-.26**	.03	.15	.02	.34**	.11
2. Recent sex		—	-.14	.03	.07	-.01	-.05	.14*	.28**	-.03
3. Sexual risk			—	.16	.40**	-.18*	.01	.13	-.03	.05
4. STD/contraceptive use				—	.39**	-.00	.22*	.17*	-.02	.04
5. Sexual risk outcomes					—	.06	.02	.07	.10	-.00
Dietary health										
6. Body image perception						—	.18*	.21**	-.14	-.01
7. Disordered eating							—	.32**	-.01	.16
8. Binge Eat/Undereat								—	-.03	.13
Risk perception										
9. Sexual risk perception									—	.14
10. Dieting risk perception										—

** $p < .01$. *$p < .05$

As for support for hypothesis 3, abstinence was found to be significantly correlated with sexual risk perception for grades 9, r (194) = .42, $p < 0.01$, grade 11, r (193) = .15, $p < 0.05$, and OAC, r (191) = .34, $p < 0.01$, indicating that students who see abstinence as relatively important perceive sex as more of a risk. This correlation was significantly more positive for grade 9 students than grade 11 students (Fisher's r to z = -51.97, $p < 0.01$), significantly more positive for grade 9 students than OAC students (Fisher's r to z = -8.84, $p < 0.01$), and significantly more positive for OAC students than grade 11 students (Fisher's r to z = 25.66, $p < 0.01$).

There was also a significant correlation between recent sex and sexual risk perception across all grades 9, r (192) = .39, p < 0.01, grade 11, r (188) = .25, $p < 0.05$, and OAC, r (191) = .28, $p < 0.01$. This correlation indicated that students who engage in more recent sexual activities also perceive sex as less of a risk. This relation is significantly more positive for grade 9 students than grade 11 students (Fisher's r to z = -13.23, $p < 0.01$) and significantly more positive for grade 9 students than grade OAC students (Fisher's r to z = -20.95, $p < .01$); however no significant difference was found between grade 11 and OAC.

In further support for hypothesis 3, for grade 11 students, recent sex is also positively correlated with dieting risk perception, r (188) = .15, $p < 0.05$, indicating that the more recent sex these students are engaging in, the less likely to perceive dieting as health compromising. For grade 9 students there was a positive correlation with dieting risk perception, r (89) = .32, $p < 0.01$, indicating that grade 9 students who have had more sexual partners perceive dieting as less of a risk-taking behaviour. Also in support of hypothesis 3, sexual risk perception is positively correlated with dieting risk

perception in both grade 9, r (194) = .23, $p < 0.01$ and grade 11, r (194) = .18, $p < 0.05$. There was no significant difference found between these groups when Fisher's z was calculated. This indicates for these two grades that if they perceive sex as a risk-taking behaviour, they will see dieting as a risk-taking behaviour. For grade 9 students, there is also a negative correlation between sexual risk perception and body image perception, r (192) = -.24, $p < 0.01$, indicating that seeing sex as less of a risk-taking behaviour is related to greater body image esteem.

Grade 9 students have a correlation between disordered eating habits and dieting risk perception, r (126) = .23, $p < 0.01$. When compared to grade 11 and OAC students, grade 9 students that engage in disordered eating habits perceive them as less of a risk.

Correlational analyses performed for each gender per grade: Tables 31, 32, and 33 show the analyses done on each of the three grades by gender that participated in this study. In support of hypothesis 2, grade 9 female showed significant relations abstinence and binge eating/undereating r (95) = .30, $p < 0.01$. These results suggest that grade 9 females who reported abstinence as being less important also reported more often binge eating or undereating. When grade 9 female results, as shown in Table 31, were examined they showed significant relations between disordered eating and dieting risk perception r (73) = .46, $p < 0.01$. The grade 9 females who reported viewing dieting as less of a risk-taking behaviour also reported engaging in more disordered eating behaviours

In further support of hypothesis 2, grade 11 male correlations were found to be significant between sexual risk-taking and binge eating/undereating r (66) = .27, $p < 0.05$. Those males with more partners also reported more frequent binge eating or undereating.

Table 31

Correlational Analysis Results for Grade 9 Males and Females

Grade 9 Males (n=100) above diagonally, Grade 9 Females (n=100) below diagonally

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.20	-.18	-.12	-.11	-.18	-.27	.08	.28**	-.15
2. Recent sex	.64**	—	.15	-.16	-.12	-.27**	-.10	.10	.34**	.06
3. Sexual risk	.17	.35*	—	-.04	.18	-.25	-.25	-.16	-.12	.19
4. STD/contraceptive use	.00	.08	-.02	—	.75**	-.30	.10	.18	.05	.01
5. Sexual risk outcomes	-.05	.09	-.01	.73**	—	.04	.22	.06	-.06	.04
Dietary health										
6. Body image perception	-.11	-.01	.21	-.17	.03	—	.40**	-.09	-.22*	.04
7. Disordered eating	.08	.03	.15	.01	-.10	.07	—	.10	-.18	-.12
8. Binge eat/Undereat	.30**	.18	.02	-.24	-.21	.01	.50**	—	-.17	-.12
Risk perception										
9. Sexual risk perception	.54**	.45**	.22	.07	-.02	-.21*	.17	.23*	—	.15
10. Dieting risk perception	.17	.17	.45**	.07	.04	.12	.46**	.36**	.27**	—

** $p < .01$. *$p < .05$

Table 32

Correlational Analysis Results for Grade 11 Males and Females

Grade 11 Males (n=100) above diagonally, Grade 11 Females (n=100) below diagonally

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.14	.10	-.08	-.06	.01	.07	.07	.13	.06
2. Recent sex	.20	—	.33**	.02	-.01	-.04	-.26	.02	.29**	.24*
3. Sexual risk	.21	-.07	—	.42**	.40**	.11	-.01	.27*	.19	.13
4. STD/contraceptive use	.08	.22*	.14	—	.79*	.12	.15	-.02	.12	-.08
5. Sexual risk outcomes	.03	.01	.27*	.56**	—	.02	.08	-.03	.05	.08
Dietary health										
6. Body image perception	.02	-.09	-.02	.04	.01	—	.12	.15	.03	-.09
7. Disordered eating	-.03	-.07	-.10	-.06	-.01	.21	—	.19	.17	-.35**
8. Binge eat/Undereat	-.19	-.12	.11	-.12	.01	.07	.33**	—	.10	.05
Risk perception										
9. Sexual risk perception	.21*	.20	.03	-.15	.03	-.06	.10	.06	—	.17
10. Dieting risk perception	.05	.00	-.04	-.19	.06	.07	.22*	.12	.19	—

** $p < .01$. *$p < .05$

Table 33

Correlational Analysis Results for OAC Males and Females

Grade OAC Males (n=100) above diagonally, Grade OAC Females (n=100) below diagonally

Variables	1	2	3	4	5	6	7	8	9	10
Sexuality										
1. Abstinence	—	.28**	-.26	-.15	-.11	.37**	.08	.18	-.15	.19
2. Recent sex	.44**	—	-.23	.01	.08	.36**	-.05	-.16	.13	-.04
3. Sexual risk	.01	.14	—	.24	.48**	-.24	-.14	-.04	.14	-.11
4. STD/contraceptive use	-.32**	.01	.14	—	.26*	-.15	.08	.34*	.26*	.20
5. Sexual risk outcomes	-.42**	.04	.33**	.49**	—	.12	.19	.06	.23	.06
Dietary health										
6. Body image perception	-.11	-.21*	-.12	-.11	-.09	—	.07	.24*	-.07	.13
7. Disordered eating	.07	-.02	.15	.15	.00	.24*	—	.11	.07	.33
8. Binge eat/Undereat	.19	.08	.20	.10	-.08	.13	.48**	—	-.06	.06
Risk perception										
9. Sexual risk perception	.36**	.43**	.17	.11	.10	-.16	-.05	.05	—	.08
10. Dieting risk perception	.05	.13	.22*	-.06	-.04	-.07	.07	.25*	.16	—

** $p < .01$. *$p < .05$

OAC males also had significant correlations between STD/contraceptive use and disordered eating r (59) = .34, $p < 0.05$, and STD/contraceptive use and binge eating/undereating r (66) = .26, $p < 0.05$. Interpreting these results indicated that OAC males who reported experiencing more STDs or using less contraception also reported more disordered eating habits and more instances of binge eating or undereating.

As well, OAC female students had significant correlations between recent sex and body image perception r (96) = -.21, $p < 0.05$. Those that reported more recent sexual activities also reported higher body image perception.

In support of hypothesis 3, all six gender by grade groups had found a significant correlation between abstinence and sexual risk perception except for grade 11 males, indicating that other than grade 11 males, the students participating in this study reported a relation of when abstinence was not very important to them, sex was also considered less of a risk-taking behaviour: grade 9 males, r (95) = .28, $p < 0.01$; grade 9 females, r (95) = .54, $p < 0.01$; grade 11 females, r (97) = .21, $p < 0.05$; OAC males, r (93) = .37, $p < 0.01$; OAC females, r (96) = .36, $p <0$ .01. When comparing grade 9 males and females, the correlation abstinence and sexual risk perception was found to be significantly more positive for females than males (Fisher's r to z = 17.46 $p < .01$).

In further support for hypothesis 3, males in grade 9 have a significant correlations between sexual risk perception and body image perception r (94) = -.22, $p <$ 0.05. Examination of these findings showed that grade 9 males who reported a relatively more negative body image perception also perceive sex as a risk-taking behaviour. When grade 9 female results were examined they showed significant relations between sexual risk-taking behaviour and dieting risk perception (r (37) = .45, $p < .01$), sexual risk

perception and dieting risk perception r (97) = .27, $p < 0.01$, and between binge eating/under eating and dieting risk perception r (97) = .36, $p < 0.01$. The grade 9 females who reported viewing dieting as less of a risk-taking behaviour also reported a higher sexual risk-taking behaviour. As well those who reported viewing dieting as less of a risk-taking behaviour also reported perceiving sex as less of a risk. Finally, grade 9 females who reported viewing dieting as less of a risk-taking behaviour also reported more often binge eating or undereating.

Also in support of hypothesis 3, grade 11 male correlations resulted in a few more significant relations (see Table 32). A significant positive correlation was found between recent sex and dieting risk perception r (94) = .24, $p < 0.05$. There was also one significant negative correlation between disordered eating and dieting risk perception r (59) = .32, $p < 0.05$. These results suggest that males in grade 11 who reported more recent sexual engagement also perceived dieting as less of a risk-taking behaviour. The negative correlation for grade 11 males indicated that males who engaged in more frequent disordered eating habits perceived dieting as a risk-taking behaviour.

Grade 11 female resulted in a significant correlation between disordered eating and dieting risk perception r (78) = .22, $p < 0.05$. Those females that reported disordered eating behaviours also reported perceiving dieting as less of a risk. OAC males also had a significant correlation between disordered eating behaviours and dieting risk perception r (59) = .32, $p < 0.05$., while students who reported increased disordered eating habits also reported that dieting is less of a perceived risk. The correlation abstinence and recent sex for OAC students was found to be significantly more positive for females than males (Fisher's r to $z = 6.55$, $p < .01$).

As well in support of the third hypothesis, recent sex and sexual risk perception correlation was significantly more positive for OAC females r (84) = .43, $p < 0.01$, than for OAC males r (56) = .36, $p < 0.01$; Fisher's r to $z = 3.78$, $p < 0.01$. This relation indicates that OAC females and males that engage in recent sex perceive it as less health compromising, but this relation is stronger for OAC females.

In final support of hypothesis 3, OAC female students had significant correlations between sexual risk-taking and dieting risk perception r (84) = .22, $p < 0.05$, and binge eating/undereating and dieting risk perception r (97) = .25, $p < 0.05$. OAC females that reported more sexual partners reported that they did not perceive dieting as a risk-taking behaviour, and those that reported less body image esteem also reported more disordered eating habits.

Hypothesis Testing

Hypothesis 1:

Gender Hypotheses:

A. Adolescent males will report a significantly higher number of sexual risk behaviours compared to adolescent females.

B. Adolescent females will report a significantly higher number of dietary health risk behaviours compared to adolescent males.

Age Hypotheses:

C. Younger adolescents will report significantly more dietary health risk-taking behaviours than older adolescents.

D. Older adolescents will report significantly more sexual risk-taking behaviours than younger adolescents.

Many of the mean scores differed upon examination of gender and age. Regarding the hypotheses predicting gender differences, hypothesis A, which hypothesized males would report a significantly higher number of sexual risk behaviours than females, was not supported. In contrast, males reported engaging in significantly less recent sex than females. As well, compared to females, males reported a more positive body image perception than females. Compared to females, males reported a significantly higher number of sexual partners. Hypothesis B, that females would report a higher number of dietary health risk behaviours than males, was supported. Males also reported significantly fewer disordered eating habits, and less instances of binge eating/undereating than females. At the same time, females perceived sexual activities as

significantly more of a risk-taking behaviour than males, and males perceived dieting as more health compromising than females.

Regarding age difference hypotheses (C and D), the hypothesis that younger adolescents would report less sexual risk-taking behaviours was supported by grade 9 students, who viewed abstinence as significantly more important than students in grades 11 and OAC. Grade 9 students also reported engaging in significantly less recent sex than grade 11 and OAC students. Support was not found for the hypothesis that younger adolescents would report more dietary health risk-taking behaviours than older adolescents, as no significant age differences were found. Grade 9 students at the same time perceived sex and dieting as significantly less of a risk-taking behaviour than students in grades 11 and OAC.

Hypothesis 2: *Adolescents that report increased involvement in sexual behaviours will also report increased amounts of dietary health risk behaviours.*

Results from this study indicate that adolescents who engaged in recent sexual activities were more likely to have a more positive perception of body image and were more likely to binge eat or undereat. One unexpected significant result showed that the grade 9 students who reported abstinence unimportant also reported higher body image perception. These results are no longer significant when comparing grade 9 males to females.

There were a number of other significant correlations found, including a positive relation between sexual risk-taking behaviour and risk outcomes. These results indicated that students who increased their number of sexual partners were also more likely to have

had a STD and were more likely to become pregnant or get their partner pregnant. This correlation was found to be significant across all ages and genders.

Similarly, the findings showed a positive correlation between perceptions of abstinence and recent sex, indicating that if adolescents reported that abstinence was not very important they were more likely to engage in recent sexual behaviours. This correlation was found to be significant across all ages and genders. STD/contraceptive use was positively correlated with sexual risk outcomes, meaning that the fewer times adolescents used contraceptives the more likely they were to get pregnant or have a sexually transmitted disease. This correlation was found to be significant across all ages and genders.

There was a significant positive relation between disordered eating and binge eating or undereating as well as between disordered eating and body image perception. These results reveal that students who engaged in relatively more disordered eating habits were more likely to have reported binge eating and/or undereating and were also more likely to have a more negative body image perception. These correlations were found to be significant across all ages and genders.

OAC students reported a significant positive correlation between binge eating and /or undereating and body image perception, suggesting adolescents who reported binge eating or undereating were more likely to have a more negative body image perception. OAC students who reported a relatively high amount of recent sexual activity also reported significantly more binge eating or undereating. The OAC students who reported having relatively more sexual partners or engaging in more sexual risk also reported a

relatively more positive body image perception. The students in OAC who reported using contraception or having less STDs also reported more binge eating or undereating.

Further significant correlational results showed that grade 9 students who reported abstinence as relatively less important also reported a more positive body image. OAC students who reported a relatively high level of recent sexual activity also reported significantly more binge eating or undereating. OAC students who reported having relatively more sexual partners or engaging in more sexual risk also reported a relatively more positive body image perception. The students in OAC who reported using contraception or having less STDs also reported more binge eating or under eating.

Grade 9 males who reported less recent sex also reported a more negative body image. Grade 9 females who reported an increased importance in abstinence reported a relatively higher frequency of binge eating or undereating. Grade 11 males who reported a relatively higher number of sexual partners also reported a relatively higher frequency of binge eating or undereating. OAC males that reported more STDs or less contraceptive use reported more disordered eating and binge eating/undereating, while the OAC females that reported more recent sex reported increased body image perception.

Significant relations between attitudes and sexual behaviour and disordered eating behaviours were found across both genders and all ages. More specifically, grade 9 males who reported less recent sex also reported a relatively more negative body image perception, and grade 9 females that reported an increased importance in abstinence reported more binge eating or undereating. Grade 11 males who reported more sexual partners also reported more frequent binge eating or undereating. OAC males that reported more STDs or less contraceptive use reported more disordered eating and binge

eating/undereating, whereas OAC females who reported more recent sex reported a relatively more positive body image perception.

Hypothesis 3: *Adolescents that engage in increased amounts of risk-taking behaviours will not perceive these behaviours as risk taking.*

Males and females across all three age groups who reported engaging in recent sex perceived sex as a relatively low-risk behaviour. Male students perceived sex as significantly less of a risk than females. Males and females reported that when abstinence was important, they perceived sex as a risk-taking behaviour.

Upon further examination, results revealed that this relation was significantly more positive for females than males. Similarly, relations were found for dietary health behaviours. For example, females who reported disordered eating habits and binge eating/undereating perceived dieting as a relatively low-risk behaviour. This difference suggests that females did not perceive these dietary risk-taking behaviours as health compromising.

Many age differences were found in the relations between dietary risk perceptions and dietary risk behaviours. Grade 9 females who reported engaging in disordered eating or binge eating/undereating, grade 11 females who reported disordered eating, OAC females that reported binge eating or undereating, and OAC males who reported engaging in disordered eating habits all perceived dieting as a relatively low-risk behaviour. However, grade 11 males who engaged in a relatively high frequency of disordered eating habits perceived dieting as relatively high-risk behaviour.

Abstinence and sexual risk perception were found to be related across all age groups. Upon further examination, it was found that the correlation between abstinence

and sexual risk perception was significantly more positive for grade 9 students than students in grades 11 and OAC, and students in OAC were significantly more positive than those in grade 11. When comparing students in grade 9, this correlation between abstinence and sexual risk perception was found to be significantly more positive for females than males.

All students who reported a relatively high frequency of recent sex also perceived sex as a relatively low-risk behaviour. This relation is significantly more positive for grade 9 students than those in grade 11 and OAC. No significant differences were found for the relation between recent sex and sexual risk perception for grade 11 students. In grade OAC, this correlation was significant for OAC females.

Chapter Summary

This chapter summarizes the results of the statistical analyses that were completed on the sexuality, health, and risk-perception research data. The data were originally discussed by descriptive statistics, where results for number of respondents to each question, standard deviation, minimum/maximum range, and skewness where shown for each variable according to both age and gender. Following the descriptive statistical analysis, an inferential statistical analysis was conducted using a 3 (grade) x 2 (gender) multivariate analysis of variance (MANOVA). The MANOVA analysis was followed by a correlational analysis where all 10 sexuality, health, and risk perception variables were explored in relation to each other. The correlations were also examined for differences between the gender and age groups. The final statistical analysis conducted was the comparison of significant correlations using Fisher's *z* test.

The remainder of Chapter Four was allocated to summarizing results in terms of research questions. The most significant gender findings of the study revealed that adolescent males reported engaging in significantly less recent sex than females and a more positive body image perception than females. As well, compared to females, males reported a more positive body image perception and a significantly higher number of sexual partners than females.

The results for dietary health revealed that females reported a higher number of dietary health risk behaviours than males. Males also reported significantly fewer disordered eating habits and fewer instances of binge eating/undereating than females. The examination of adolescent perceptions of dieting and sexual behaviours as health compromising revealed females perceived sexual activities as significantly more of a health compromising behaviour than males, and males perceived dieting as more health compromising than females.

The most significant age findings revealed grade 9 students reported engaging in significantly less recent sex than grade 11 and OAC students. No significant age differences were found to support the idea that younger adolescents would report more dietary health risk-taking behaviours than older adolescents. Grade 9 students at the same time perceived sex and dieting as significantly less of a health compromising behaviour than students in grades 11 and OAC.

Grade 9 students that reported abstinence unimportant also reported higher body image perception. Results also revealed that students who engaged in relatively more disordered eating habits were more likely to have reported a more negative body image perception. This correlation was found to be significant across all ages and genders.

Other results suggest adolescents who reported binge eating or undereating were more likely to have a more negative body image perception. OAC students who reported a relatively high amount of recent sexual activity also reported significantly more binge eating or undereating. The OAC students who reported having relatively more sexual partners or engaging in more sexual risk also reported a relatively more positive body image perception.

Further results showed that grade 9 students who reported abstinence as relatively less important also reported a more positive body image, and OAC students who reported a relatively high level of recent sexual activity also reported significantly more binge eating or undereating. As well, OAC students who reported having relatively more sexual partners or engaging in more sexual risk also reported a relatively more positive body image perception. The students in OAC who reported using contraception or having less STDs also reported more binge eating or undereating.

The most significant correlation findings revealed a relation between attitudes and sexual behaviour, and disordered eating behaviours across both genders and all ages. More specifically, grade 9 males who reported less recent sex also reported a more negative body image. Grade 9 females who reported an increased importance in abstinence reported a relatively higher frequency of binge eating or undereating. Grade 11 males who reported a relatively higher number of sexual partners also reported a relatively higher frequency of binge eating or undereating. OAC males that reported more STDs or less contraceptive use reported more disordered eating and binge eating/undereating, while the OAC females that reported more recent sex reported increased body image perception.

Males and females across all three age groups who reported engaging in recent sex perceived sex as a relatively low-risk behaviour. Male students perceived sex as significantly less of a risk than females. Males and females reported that when abstinence was important, they perceived sex as a risk-taking behaviour.

Similarly relations were found for dietary health behaviours. For example, females who reported disordered eating habits and binge eating/undereating perceived dieting as a relatively low-risk behaviour. This difference suggests that females are not perceiving these dietary risk-taking behaviours as health compromising.

Across both genders and the majority of ages, adolescents reported that despite their unhealthy nutrition habits they felt that dieting was not a high-risk behaviour. With the exception of OAC males, all males and females reported engaging in binge eating/undereating and disordered eating and reported dieting as a relatively low-risk behaviour.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

This study explored adolescent sexuality, dietary health, and perceptions of risk-taking. The main objective of this study was to better understand how the adolescents' sexual behaviours relate to their dietary health behaviours and to their perception of risk-taking. Quantitative research analyses analyzed secondary data received for students in grades 9, 11, and OAC in a southern Ontario community.

This chapter will discuss: (a) present study's findings and interpret these findings in relation to the research questions and corresponding hypotheses and relate them to past literature, (b) the implications of the current findings for theory, practice, and future research, (c) the limitations of this study, and (d) the conclusions drawn from the current findings.

Main Findings and Support for Hypotheses

The main findings of this study are twofold. The first main finding suggests that there was a positive relation between sexual and dietary health risk-taking behaviours. That is, as adolescents engage in sexual risk-taking behaviours, they also engage in dietary heath risk, for both girls and boys. The second main finding was a relation between those risk-taking behaviours, in both sexuality and dietary health, and the perception of those behaviours as likely to harm oneself, or compromise one's health. Compared to females, males perceived sex and dieting as less of a risk. Also, females were engaged in more risk-taking behaviours related to sex and dieting compared to males. Risk perception for both sex and dietary health does increase with grade; however, reported sexual activity also increased with grade. Grade effects were not found for dietary health behaviours.

Question 1: *Will adolescents differ in reported risk-taking behaviours involving sexuality and dietary health?*

Previous research has indicated that when adolescent females and adolescent males are asked about their recent sexual activity, males tend to claim being involved more than females (Grunbaum et al., 2002; Moreau-Gruet & Ferron, 1996). In light of past research, it was hypothesized that adolescent males would report more recent sexual activity than adolescent females. The results of this study found that across the three grade levels (9 – OAC), adolescent females reported engaging in a significantly greater amount of recent sexual activity than their fellow male students. A potential explanation of this finding is that the variable recent sex in this study included not only sexual intercourse but also oral sex, sexual petting, and kissing as well. Perhaps for future research the composite variable could be examined compared to each individual component.

As previously discussed in Chapter Two, past research has revealed that adolescent females are at a significant risk for participating in dietary health risk behaviours such as restrictive eating, excessive exercise, binging, purging, and abuse of laxatives, diet medications, and water pills (Grunbaum et al., 2002; Health Canada, 1999; Jones et al., 2001; Massey-Stokes, 2000). Studies have revealed that these females are at a much greater risk for engaging in these dietary health risk-taking behaviours than adolescent males (Grunbaum et al.; Health Canada).

Based on this past research, it was hypothesized that adolescent female students would report a significantly higher number of dietary health habits than adolescent males. The results of this study support this hypothesis. It was found that females reported

significantly more instances of binge eating or undereating than their fellow male students. As well, female students reported a significantly less positive body image perception than male students. No grade effects were found for binge eating/under eating and body image perception.

This finding supports Health Canada, which reported that 77% of adolescent females aged 15 are not satisfied with their bodies. This is compared to only 57% of Canadian males (Health Canada, 1999). Therefore it is expected that a significant number of males and females would report body dissatisfaction, but that this occurrence would be more common in adolescent females.

Results from the 2001 Youth Risk Behaviour Surveillance Survey conducted in the United States reveal that the younger grade 9 students that were surveyed reported being more likely to engage in excessive exercising or fasting in order to lose weight more often than the students in grades 11 and 12 (Grunbaum et al., 2002). In the current study, it was hypothesized that younger students would report significantly more disordered health habits than the older students.

Regarding dietary health practices, no significant grade differences were found. That is, there were no age differences in the involvement in disordered health habits such as binge eating, undereating, or disordered eating. Past research has found that younger adolescents were more likely to be involved in dietary health compromising behaviours. According to Grunbaum et al. (2002), grade 9 students were statistically more likely to excessively exercise or fast in order to lose weight than students in grades 11 and 12.

According to past research, sexual risk-taking increases with age. In the Youth Risk Behaviour Surveillance Survey, results reveal that students in grades 9 and 10 were

less likely to have engaged in recent sexual activity than those students in grades 11 and 12, and students in grade 12 were significantly more likely to have engaged in recent sexual activity than students in grade 11 (Grunbaum at al., 2002). Similarly, students in grades 9 and 10 were also less likely to have had four or more sexual partners than students in grades 11 and 12, and once again, students in grade 12 were significantly more likely to have more partners than those in the 11th grade (Grunbaum et al., 2002).

Due to these findings, it was hypothesized that older students were going to report engaging in significantly more sexual activities than the younger students. The findings support this hypothesis. Students in grade 9 reported engaging in significantly less recent sex than students in grades 11 and OAC.

Question 2: Does a relation exist between reported adolescent sexual behaviours and reported adolescent dietary health risk behaviours?

As previously discussed in Chapter Two, research indicated that for adolescent females, the perception of being slimmer than they currently are is associated with being popular with boys and more successful in dating (Halpern et al., 1999). Unfortunately, there is a lack of available research on adolescent males' sexual behaviour and its relation to their health risk behaviours (Cohane & Pope, 2001).

The hypothesis that there would be a significant relation between reported adolescent sexual behaviours and reported dietary health risk behaviours was supported in the current study by the finding that adolescents who engage in recent sexual activities also report a more positive body image perception and report more incidents of binge eating or undereating. This finding was found when examining all participants as well as OAC students, specifically OAC males.

One unexpected significant result showed that the grade 9 students that reported abstinence as unimportant also reported higher body image perception. OAC students that reported more recent sexual activity and less contraceptive use/more STDs also reported significantly more binge eating or undereating. The OAC students who reported having more sexual partners or engaging in more sexual risk also reported having a higher body image perception.

Grade 9 males compared to females reported less recent sex and a relatively more negative body image perception. Grade 9 females that reported an increased importance in abstinence reported more binge eating or undereating. Grade 11 males that reported more sexual partners also reported more frequent binge eating or undereating. OAC males that reported more STDs or less contraceptive use reported more disordered eating and binge eating/under eating, while the OAC females that reported more recent sex reported increased body image perception.

It was found that there was a significant relation between disordered eating and binge eating/undereating, as well as body image perception. This finding was across all ages and genders except that disordered eating didn't correlate with body image perception in grade 9 or 11 females and OAC males, and disordered eating didn't correlate with binge eating/under eating for grade 9 males, grade 11 males and females, as well as OAC males. This indicated students who engaged in more disordered eating habits are more likely to binge eat/under eat, and these groups are more likely to have a more negative body image perception.

Question 3: *Will adolescents differ in their reported adolescent risk perceptions and reported risk behaviours?*

The majority of research on adolescents suggests that many adolescents take risks (Abalbjarnardottir, 2002; Byrnes, et al., 1999; Cohn, et al., 1995; Wade & Brannigan, 1998). But do adolescents perceive these actions as risk-taking? Cohn and his colleagues suggest that adolescents hold a more optimistic view regarding health-threatening activities and therefore do not regard their behaviours as extremely health compromising or unsafe. Based on this theory, it was hypothesized that adolescents who engage in increased amounts of risk-taking behaviours would not perceive these behaviours as risk-taking.

The finding that both males and females reported engaging in recent sex and perceiving sex as less health compromising supported this hypothesis. The grade 11 and grade 9 females reported more recent sex and also reported perceiving sex as less of a risk.

Students who reported binge eating or undereating also were found less likely to see dieting as a risk-taking behaviour. Females who reported engaging in disordered eating habits and binge eating/under eating also reported perceiving dieting as less of a risk. There were many other groups that, upon examination, indicated that despite their unhealthy dietary health habits they felt that dieting was not a risk-taking behaviour. Grade 9 students that reported engaging in binge eating/under eating and disordered eating, grade 9 females who engage in disordered eating or binge eating/undereating; grade 11 females who reported disordered eating, OAC females that reported binge eating or undereating, and OAC males who reported engaging in disordered eating habits all reported not perceiving dieting as a risk-taking behaviour.

Conversely, grade 11 males who reported engaging in more disordered eating habits did report perceiving dieting as more of a risk-taking behaviour. These findings overall suggest that adolescents who engage in risk-taking behaviours do not perceive these actions as risk-taking, and in the instance of grade 11 males, despite perceiving the actions as risk-taking, they continue to engage in disordered eating habits.

Implications of the Current Findings

Implications for Theory

The results of this study raises concerns over adolescent's perceptions of risk taking and gender differences among sexual and dietary behaviours. Although this study focused on the behavioural and physical components of risk-taking, the construct of risk-taking remains a multifaceted and complex construct. That is, risk taking may go beyond the threat of one's own physical well being into the social, emotional, cultural and intellectual realms (Johnson, 2000; Ponton, 1998). Physical risk-taking, as has been discussed in chapter 2, is causing one's self potentially physical harm. Excessive dieting and promiscuity fall into this category for the threat it has to the body and life threatening outcomes. However these same physical risk-taking behaviours can threaten one's emotional, social and cultural well being. For example, a promiscuous adolescent female that gets pregnant will potentially encounter the emotional strain of the pregnancy. The pregnancy will affect not only herself, but the father, and their parents as well. The social stigma of an adolescent pregnancy still exists and it is probable that her social life will be affected permanently.

Risk-taking not only affects social, emotional, cultural, and intellectual outcomes, but it is also possible to take social, emotional, cultural and intellectual risks (Johnson,

2000). These risks can sometimes have positive consequences. Risks can be simple like trying something new, like going to a camp. This risk leaves family and security behind and youths find new friends, and become part of a new community (Woods, 2002). During this same experience youths can be intellectually risk-taking by experimenting with new behaviours and new thinking. They are trying a new experience and potentially stimulating more complex thinking (Woods). These risks can bring about positive changes in self-growth and development and positive transformations for the risk-taker.

Emotional risk-taking is potentially one of the most painful for many adolescents and adults alike. Emotional risk-taking can be seen as far worse than physical because to many views, bones will heal but the hurt often continues (Johnson, 2000). Emotional risk-taking can also be extremely rewarding but often many feel the fear of failure or rejection along with the risk. For many there is a fear of taking chances or opportunities such as asking someone out of a date. The consequences can be to the emotional health, but potentially to social and cultural as well.

The implications of this study's findings for theory are that they may further develop the concept of adolescents as risk takers, and potential changes in sexuality trends as well as results regarding health activities. Elkind's theory of adolescent egocentrism states that adolescents do not understand the consequences of their actions and may place themselves at risk (1967). In contrast to Elkind's theory of adolescent egocentrism, the theory of planned behaviour postulates that an adolescent's attitude towards a behaviour and perceived behavioral control in regard to that behaviour can predict intentions to engage in a behaviour (Tolman, 1999). This theory, however useful, cannot accurately predict behavioural outcomes at all times. There are external factors

such as time, opportunity, and dependence on co-operation of other people that may affect an adolescent's involvement in risk-taking behaviour.

In contrast, Jessor et al.'s (1995) problem-behaviour theory is based on a psychosocial framework that focuses on three explanatory systems: personality system, perceived environment system, and behaviour system. Within each of these three systems, the explanatory variables reflect either instigators to problem behaviours or controls against the behaviour. Together they generate a likelihood of occurrence of normative or problematic behaviours (Jessor et al.).

In a relevant research study, Cohn et al. (1995) compared adolescents to adults regarding their risk perceptions. The results indicated that many adolescents do not view their actions as extremely health compromising or unsafe and feel they can periodically be involved with these risk-taking practices without consequences. In contrast, adults reported activities as being significantly more harmful to the teenagers than the teenagers did themselves. The results of this study support this idea in that adolescents in this study who reported engaging in risk-taking behaviours such as sex and disordered eating also reported not viewing these activities as risk-taking.

The result that females reported more recent sex than males is perhaps the most surprising. Studies have often found that males report more recent sex than females; however, there were consistent findings with past research in that males reported more sexual partners than females. Perhaps this finding is an anomaly or it is an indication of current trends that as women become more equal in society, females feel more comfortable with their sexuality.

Not surprising were the results that females report more disordered eating or unhealthy self-perceptions than males. Previous research has indicated that in the past adolescent females were at an increased risk for excessive exercising, binging, purging, and using medications in order to lose weight (Grunbaum et al., 2002; Health Canada, 1999; Jones et al., 2001; Massey-Stokes, 2000). However, the findings in the present study were complicated. As discussed in Chapter Four, grade 9 males and OAC females who engage in more sexual activities reported a more positive body image perception. Males who engaged in more sexual activities also reported engaging in more disordered eating habits. Adolescent behaviours are complicated, and with hormones racing and decision-making abilities skewed, these activities are hard to comprehend; so understandably, it is also hard to predict adolescent behaviours. It should also be noted that literature has indicated a rise in adolescent male disordered health behaviours with involvement in taking anabolic steroids in order to achieve the more ideal "bigger" body shape and increase in muscle mass (Cohane & Pope, 2001). This current research study provides information regarding adolescent male sexual and dietary health behaviours, which is an area of study that is greatly under-considered. This research also builds a stepping-stone from which other researchers can launch for future research into areas such as male dietary health.

Implications for Practice

This study does not directly address the current Ontario curriculum, but it can provide a framework for teachers and the Ministry of Education as to what areas of the curriculum need to be more stressed or changed. It is obvious from the results of this study that there is a dire need for teaching students that these activities are taking risks

and to teach these students the consequences of their actions. It can be inferred from the results that students do not comprehend that they are risking their lives and futures with these risk-taking behaviours. Currently the school curriculum is structured with explicit, consciously planned course objectives in mind, leaving little room for student independence (Wren, 1999). Possibly, if school were more didactic, or characterized by more informality, students and teachers would have a better opportunity to explore motivations into risk-taking behaviours.

Sexual and dietary health education can benefit from the exploration and addressment of the hidden curriculum. The hidden curriculum is a widely known term referring to the shadowy and ill-defined nature of what is implicit and embedded in education experiences or that which is taught to students implicitly through the everyday routines of teacher/student lives (Sambell & McDowell, 1998). The hidden curriculum of sexual health is a potent and generally unaddressed phenomenon (Sears, 1992). There is an overemphasis on rational decision-making and the failure to explore the eroticism associated with sexuality and the language of intimate sexual communication (Sears).

Research indicates that education can serve as a warning sign or barrier for risk-taking behaviours. Adolescents that have a strong attachment to school are less likely to engage in risk-taking behaviours (Wade & Brannigan, 1998). Students with low academic achievement and low educational aspirations are more likely to engage in risk-taking behaviours (Luster & Small, 1994). Schools make demands of control, discipline, and accountability on students, which are extremely hard to achieve for students with low self-control, which can lead to poor school performance along with increased risk-taking behaviours (Wade & Brannigan). Therefore, teachers should be encouraged to aid

students wherever possible to increase an adolescent's attachment to school and should potentially single out students that appear to have low academic aspirations or low self-control and perhaps offer some educational alternatives.

The results of this study do not support past research that males will report more sexual activities than females (Baumeister & Tice, 2001). In fact, the opposite results were found, which may be a new trend in adolescent sexuality and definitely needs to be further explored in future research. Unfortunately, with increased sexual activity comes the increased risk of pregnancy and sexually transmitted diseases. Past research suggests that some adolescent mothers not only face several physical health issues but also are more likely to have a low educational achievement (Coley & Chase-Lansdale, 1998; Dryburg, 1999).

There are educational programs that exist to nurture the social emotional, physical, intellectual and cultural well-being of youths as well as to minimize the potential of these future risk-taking behaviours. Schools can help by offering programs for adolescent parents that can aid in prevention or by offering education programs such as "Roots of Empathy" where a mother and child under the age of one are visitors to a classroom for an entire school year, which gives students a more realistic view of what parenthood would resemble (Regional Municipality of Niagara, 2000). The mother and child visit monthly to show the class development and challenges at each stage of infant development. A Roots of Empathy instructor, who is often trained outside of the school system on this program, facilitates a "previsit" and "postvisit" class with the students. Roots of Empathy also addresses many of the components of the Ontario curriculum. The

program is currently offered only from kindergarten to grade 8 (Regional Municipality of Niagara).

The program "GO GIRLS" is a program that is currently run across North America for adolescent females. GO GIRLS stands for Giving Our Girls Inspiration & Resources for Lasting Self-Esteem (Eating Disorders Awareness & Prevention, 1998). This program was designed in response to the increasing threat of female eating disorders and aims to encourage teens to voice their opinions to advertisers and let them know that beauty and success have little to do with dress size. Girls in the programs are provided with the tools, confidence and self-esteem that is needed to combat the potentially negative influences in their lives such as the media (Eating Disorders Awareness & Prevention). Projects in the program are designed to not only empower but to education teens and adolescent females are shown that as the business leaders of the future they have the opportunity to help influence marketing decisions as well as inspire future females to have self-respect (Eating Disorders Awareness & Prevention).

Another interesting program comes out of Detroit, Michigan. Located downtown in one of the most dangerous cities in the day is a unique school named the Nataki Talibah Schoolhouse. This school has adopted a program for all their students to reduce stress, anxiety and increase school performance. This school as practices transcendental meditation for 20 minutes of every school day (Alphonso, 2003). Transcendental meditation is a form of meditation to reduce stress and calm the mind and body. The students are brought two times a day into the gymnasium for they meditation sessions that have been shown to help students cope with anxieties over homework and tests. It is believed that this activity will help the students in the future by showing that alternate

behaviours such as drinking alcohol or doing drugs are not as effective at relieving stress (Alphonso).

There are also some education programs designed for risk-takers to help them break health compromising habits. The government of Canada has created a social skills training program for those with substance abuse problems (Correctional Service of Canada, 2003). Along with rehabilitation programs social skills training has been introduced to teach alcohol and drug abusers to function more effectively in social situations. Clients are taught more effective ways of communicating as well as improving interpersonal relationships (Correctional Service of Canada). The components of the skills training are instructions, modeling, rehearsal, feedback and homework. Participants in this program have been found to have a significantly higher chance of abstaining from illegal substances in the future (Correctional Service of Canada).

The findings of this study support the need for a development of a more holistic approach to sexuality education, including more on physical health, psychological health, dietary health, and biological development. According to holistic educators, education should not be merely the acquisition of academic subject matter, but be a part of life itself (Bosacki, 2001). A holistic approach to sexual health education would work better than the age-grade approach and could allow for older and younger students to learn with and from the experience of others. Seeing as peers are noted in research as a strong influencer for risk-taking behaviours perhaps education can ensure that positive influencers are available for adolescents (Wade & Brannigan, 1998).

The teacher may be able to use the results to aid in the creation of classroom strategies that can improve students' knowledge about themselves; their sexuality, their

health and potentially their reasoning about these potentially risk-taking activities. Students could be using the results for personal reflection about their choices. Adolescents may not be able or willing to understand the consequences of their actions without studies such as this that show students are taking unhealthy risks and not comprehending the potential outcomes of their actions.

Future Research Implications

The results of this research, however meaningful, can be improved upon and expanded in future research studies. Most important, this research needs to further explore the role of self-esteem in risk-taking. Future studies should examine whether self-esteem plays a part in the relation between sexuality and dietary health risk-taking. Future research also needs to explore adolescents' motivation and emotional development behind these activities. For example, why are teens engaging in risk-taking behaviours, and how do these behaviours make them feel? What may be perceived as a negative behaviour to a researcher might be positive to the participant. For example, getting drunk to a researcher may be perceived as negative but for the adolescent participant it might be perceived as a positive goal.

Educationally, it is very important to understand if the curriculum and teacher are addressing the issues of sexuality and dietary health risk-taking for the learner. If the learner does not perceive their activities as risk-taking, what could be changed in the curriculum or shown to the teacher or learner to aid in understanding of potential future consequences? A very important point in the study that should be explored in future research is the result that females reported more recent sex than males. Is this just a statistical anomaly in this study, or is this a new trend in adolescent sexuality?

An interesting finding that should be explored in the future is that females reported perceiving sexual behaviours as more likely to compromise their health. In contrast, males perceived dieting as more health compromising. Were these findings because in general adolescents do not perceive their own actions as risk-taking, or do they perceive the actions of others more risk-taking than their own? Past research into risk-taking and risk perception has revealed a debate on this subject. Theorists such as Elkind (1967) believe that adolescents perceive themselves as virtually invincible and therefore do not perceive the outcome of their actions to be a viable outcome. Cohn et al. (1995) found that adolescents do not view their actions as risky or extremely unsafe and they feel they can periodically be involved in risk-taking behaviours without consequences. Unfortunately there are no clear-cut answers as to why some adolescents take risks while others abstain.

Limitations of the Current Study

There are some limitations to the current research. There is a potential problem that students were left to interpret questions. An example is in the question regarding binge eating or undereating; the question simply asked how often in the last 12 months the subject binge ate or underate. It is possible to not understand what is meant by binge eat or undereat, and this could have been misinterpreted as "pigging out" or missing a meal.

A limitation of this current study is that it had to change from its original focus because it was too large. Although it is understandable that the current study might have been too large with the inclusion of self-esteem along with the other variables examined, the inclusion of self-esteem may be invaluable and should be examined in the future.

Self-esteem should also, in the future, be examined in relation to body-image perception in adolescence. Due to the size of the current study, this potential link was not explored but should be in the future.

Another limitation is that the questionnaire did not ask how the participants felt about their answers. Were they proud of their multiple partners or were they ashamed? Did they brag about the pregnancies or did they want to hide them? The motivation behind the answers may have been invaluable in the current research study. It is potentially just as important to know whether a student is proud of their binge and purge behaviours as it is to find out if they are engaging in disordered eating behaviours

Due to ethical reasons, this study focused on grades 9 to OAC, which means that the younger adolescent populations were ignored. This was limiting because it is possible that the younger participants could have offered more insights into age development of the sexual and dietary health risk-taking behaviours.

The adolescents' perception of self may also be dependent on their current role during testing time (Harter, 1999). Harter has stated that adolescents take on different "roles" depending on the situation. It is possible that the students who participated in this study may take on different personality qualities depending on how they perceive the testing situation. The adolescent's behaviour and personality traits tend to vary depending on the context of the situation, and therefore their responses may vary according to context. Are they in school? Are they with a romantic partner? Are they with their best friend? Are they with a group of friends? Also, given that the data were collected in a school setting, reports of some behaviour may become over-exaggerated to impress their peers.

There is also the problems that plague most sexuality research. There is the issue of non-response. Often there are a certain number of participants who simply refuse or do not wish to participate due to the sensitive and intimate nature of sex research (Crooks & Baur, 1999). This could explain why many of the 600 participants for this study did not answer some of the sexuality questions, lowering the subject numbers.

Conversely there is also the issue of self-selection and a participant's willingness to respond. Studies suggest that those who do participate in sex research tend to be more sexually experience and hold a more positive attitude towards sexuality and sex research than non-participants (Crooks & Baur, 1999). Studies have also found that women tend to volunteer less than men for sex research (Crooks & Baur).

As well, males tend to exaggerate their behaviour to conform to social desirability. They may claim to be more sexually active then they actually are. Females in contrast tend to underestimate their sexual practices in order to conform to socially desirable standards for women (Baumeister & Tice, 2001). Considering the results of the current study, however, this is either not an issue or should be of deep concern for current trends in sexuality research.

The YLC-CURA research team created the questionnaire portions that were examined for this research study. Therefore, these questionnaires were potentially lacking in both validity and reliability, which is essential for research studies, as the questionnaire was never previously tested.

This study also limited itself by using composite variables. These grouped variables were helpful in including many more variables into the study but also potentially limited the richness of the data. It is possible that some components of the

data were lost when the specific answers to each question were not examined and instead the questions were group conceptually and analyzed as a group.

Another limitation in this current research is the use of correlations. Correlations can be useful for indicating when and where relations exist but they can also be quite limiting and problematic in that they can not show directionality or causality (Benjafield, 1994). This study is also quantitative, which suggests that data were not explored as in depth as interviews or narratives (Tolman & Szalacha, 1999). The problem with quantitative research is that it is prone to self-report biases. Survey data have also two other limitations. The sample studied may not be representative of the entire population (Matlin, 1992). Due to the sample size, I believe that this limitation is largely controlled for, but I believe that there is a possibility that minority populations were underrepresented in this study. Another limitation is that people may not recall information accurately (Matlin). It is hoped that because many questions ask about present-day situations or recent events, this was not a problem.

Conclusions of the Study

Overall, this study suggests that there may exist a relation between adolescents' sexual behaviours and their involvement in dietary health activities and attitudes. To conclude, the study found that adolescent males reported engaging in significantly less recent sex than females and had a more positive body image perception than females. As well, compared to females, males reported a significantly higher number of sexual partners than females.

The results for dietary health revealed that females reported a higher number of dietary health risk behaviours than males. Males also reported significantly fewer

disordered eating habits and fewer instances of binge eating/under eating than females. The examination of adolescent perceptions of dieting and sexual behaviours as health compromising revealed that females perceived sexual activities as significantly more of a health-compromising behaviour than males, and males perceived dieting as more health compromising than females.

The most significant age findings revealed grade 9 students reported engaging in significantly less recent sex than grade 11 and OAC students. No significant age differences were found to support the idea that younger adolescents would report more dietary health risk-taking behaviours than older adolescents. Grade 9 students at the same time perceived sex and dieting as significantly less of a health-compromising behaviour than students in grades 11 and OAC.

Grade 9 students that reported abstinence unimportant also reported higher body image perception. Results also revealed that students who engaged in relatively more disordered eating habits were more likely to have reported a more negative body image perception. This correlation was found to be significant across all ages and genders.

Other results suggest adolescents who reported binge eating or undereating were more likely to have a more negative body image perception. OAC students who reported a relatively high amount of recent sexual activity also reported significantly more binge eating or undereating. The OAC students who reported having relatively more sexual partners or engaging in more sexual risk also reported a relatively more positive body image perception.

Further results showed that grade 9 students who reported abstinence as relatively less important also reported a more positive body image, and OAC students who reported

a relatively high level of recent sexual activity also reported significantly more binge eating or undereating. As well, OAC students who reported having relatively more sexual partners, or engaging in more sexual risk also reported a relatively more positive body image perception. The students in OAC who reported using contraception or having less STDs also reported more binge eating or under eating.

The most significant correlation findings revealed a relation between attitudes and sexual behaviour and disordered eating behaviours across both genders and all ages. More specifically, grade 9 males who reported less recent sex also reported a more negative body image. Grade 9 females who reported an increased importance in abstinence reported a relatively higher frequency of binge eating or undereating. Grade 11 males who reported a relatively higher number of sexual partners also reported a relatively higher frequency of binge eating or undereating. OAC males that reported more STDs or less contraceptive use reported more disordered eating and binge eating/undereating, while the OAC females that reported more recent sex reported increased body image perception. As well, grade 9 males who reported less recent sex also reported a relatively more negative body image perception.

Males and females across all three age groups who reported engaging in recent sex perceived sex as a relatively low-risk behaviour. Male students perceived sex as significantly less of a risk than females. Males and females reported that when abstinence was important, they perceived sex as a risk-taking behaviour.

Similarly, relations were found for dietary health behaviours. For example, females who reported disordered eating habits and binge eating/undereating perceived

dieting as a relatively low-risk behaviour. This difference suggests that females are not perceiving these dietary risk-taking behaviours as health compromising.

Across both genders and the majority of ages, adolescents reported that despite their unhealthy dietary health habits they felt that dieting was not a high-risk behaviour. With the exception of OAC males, all males and females reported engaging in binge eating/undereating and disordered eating and reported dieting as a relatively low-risk behaviour.

These results are reinforced by past research that reveals that adolescent risk-taking behaviours such as health-compromising sex and extreme dieting are often not perceived by adolescents to be risk-taking behaviours (Cohn et al., 1995). Future research will need to continue to explore underlying reasons for these findings, such as the potential influence of the media or the role of hormones during development. The results indicate that adolescents report feeling better about how they look when they are sexually active, but they also report engaging in risk-taking behaviours such as binge eating or undereating more often when they are in these sexual relations. Past research has shown that for adolescent females there is a positive relation between the desire to change one's body shape (e.g., lose weight) and the belief that males prefer women with slim body types (Halpern et al., 1999) Perhaps society, including educators and families, need to stress to females that their perception of attractive is not only unrealistic but unhealthy.

Adolescents who engage in sexual activities or extreme dieting do not see what they are doing as health compromising. Adolescents, whether through a sense of invincibility or simply a failure to see their actions as health-compromising (Cohn et al., 1995), tend to engage in various risk-taking behaviours such as the sexuality and health

risks that have been discussed in this current study. Those that do perceive sexual risk are generally grade 9 students who still believe in abstinence, so it is important for the safety of our teenagers and future generations that we teach them that these are risk-taking behaviours with potentially dire consequences. Unfortunately, adolescent females in this and other studies engage in a multitude of health risk behaviours such as binge eating and undereating, and they do not perceive these actions as risk-taking (Grunbaum et al., 2002; Health Canada, 1999; Jones et al., 2001; Massey-Stokes, 2000).

The results of this study regarding adolescents' reported sexual and dietary health risk behaviours and their perceptions of these behaviours as risks indicate a need for further research. In addition, this study highlights the importance that education can play in the risk-taking decision process. Sexual health and dietary health educators in the future can use these results to reinforce the need for a more interactive and effective sexual health education program.

References

Abalbjarnardottir, S. (2002). Adolescent psychosocial maturity and alcohol use: Quantitative and qualitative analysis of longitudinal data. *Adolescence, 37*(145), 19-53.

Ackard, D. M., Kearney-Cooke, A., & Peterson, C. B. (2000). Effect of body image and self-image on women's sexual behaviours. *International Journal of Eating Disorders, 28*(4), 422-430.

Alphonso, C. (2003, July 5). Can meditation help inner-city kids? *The Globe and Mail*, p. F6.

Baumeister, R. F., & Tice, D. M. (2001). *The social dimension of sex*. Toronto, ON: Allyn and Bacon.

Benjafield, J. G. (1994). *Thinking critically about research methods*. Toronto, ON: Allyn and Bacon

Bolden, L., & Williams, B. G. (1995). A measurement of self-esteem in pregnant teenagers. *Clinical Nursing Research, 4*(2), 223-231.

Bosacki, S. (2001). Spirituality, gendered subjectivities, and education in preadolescents: Canadian preadolescents' reflections on gender-roles and their sense of self. *International Journal of Children's Spirituality, 6*(2), 207-221.

Brannon, L., & Feist, J. (2000). *Health Psychology.* Scarborough, ON: Nelson/Thomson Learning.

Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender differences in risk-taking: A meta-analysis. *Psychological Bulletin, 125*(3), 367-383.

Carison, D. L. (1992). Ideological conflict and change in the sexuality curriculum. In J. Sears (Ed.), *Sexuality and the curriculum* (pp. 34-58), New York: Teachers College Press.

Centre for Infectious Disease Prevention and Control. (1999). Sexual risk behaviours of Canadians. Retrieved September 18, 2001, from the World Wide Web: http://www.hc-sc.gc.ca/hpb/lcdc/bah/epi/sexbe_e.html

Chewning, B., & Van Koningsveld, R. (1998). Predicting adolescents' initiation of intercourse and contraceptive use. *Journal of Applied Social Psychology, 28*(14), 1245-1285.

Christopher, F. S., & Cate, R. M. (1984). Factors involved in premarital sexual decision-making. *Journal of Sex Research, 20*, 363-376.

Cohane, G. H., & Pope, H. G., Jr. (2001). Body image in boys: A review of the literature. *International Journal of Eating Disorders, 29*(4), 373-380.

Cohn, L. D., Macfarlane, S., Yanez, C., & Imai, W. K. (1995). Risk-perception differences between adolescents and adults. *Health Psychology, 14*(3), 217-222.

Coley, R. L., & Chase-Lansdale, P. L. (1998). Adolescent pregnancy and parenthood. *American Psychologist, 53*(2), 152-166.

Correctional Service of Canada (2003). *Social skills training*. Retrieved July 8, 2003 from http://www.csc-scc.gc.ca/text/pblct/litreview/treatmmod/lit22e_e.shtml

Crooks, R., & Baur, K. (1999). *Our sexuality*. Toronto, ON: Brooks/Cole.

DeGaston, J. F., Weed, S., & Jensen, L. (1996). Understanding gender differences in adolescent sexuality. *Adolescence, 31*, 217-231.

Denscombe, M. (2001). Critical incidents and the perception of health risks: The experiences of young people in relation to their use of alcohol and tobacco. *Health, Risk, & Society, 3*(3), 293-307.

Donohew, L., Zimmerman, R., Cupp, P. S., Novak, S., Colon, S., & Abell, R. (2000). Sensation seeking, impulsive decision making, and health-compromising sex: Implications for risk-taking and design of intervention. *Personality and Individual Differences, 28,* 1079-1091.

Dryburg, H. (1999). Teenage pregnancy. *Health Reports, 12*(1). Retrieved October 18, 2001, from the World Wide Web: http://www.statcan.ca/english/kits/preg/preg3.htm.

Eating Disorders Awareness & Prevention (1998). *GO GIRLS! Summary*. Retrieved July 8, 2003 from www.goldinc.com/gogirls/summary.htm

Eliot, A. O., & Baker, C. W. (2001). Eating disorders in adolescent males. *Adolescence, 36*(143), 535-544.

Elkind, D. (1967). Egocentrism in adolescence. *Child Development, 38*, 1025-1034.

Ferraro, F. R., & Wonderlich, S. (1997). Do individuals at risk for eating disorders exhibit negative priming deficits? *Journal of General Psychology, 124*(4), 381-391.

Fisher, W. A., & Boroditsky, R. (2000). Sexual activity, contraceptive choice, and sexual and reproductive health indicators among single Canadian women aged 15-29: Additional findings from the Canadian contraceptive study. *The Canadian Journal of Human Sexuality, 9*(2), 79-93.

Goff, B. G., & Goddard, W. (1999). Terminal core values associated with adolescent problem behaviours. *Adolescence, 34*(133), 47-60.

Greene, K., & Kicmar, M. (2000). Targeting adolescent risk-taking behaviour: The contributions of egocentrism and sensation seeking. *Journal of Adolescence, 23*(4), 439-462.

Grunbaum, J., Kann, L., Kinchen, S. A., Ross, J. G., Gowda, V. R., Collins, et al. (2000). Youth risk behaviour surveillance national alternative high school youth risk behaviour survey, United States, 1998. *Journal of School Health, 70*(1), 5-18.

Grunbaum, J., Kann, L., Kinchen, S., Williams, B., Ross, J., Lowry, R., et al. (2002). Youth risk behaviour surveillance – United States, 2001. *MMWR: Morbidity & Mortality Weekly Report, 51*(SS-4), 1-62.

Haavio-Mannila, E., & Purhonen, S. (2001). Slimness and self-rated sexual attractiveness: Comparisons of men and women in two cultures. *The Journal of Sex Research, 38*(2), 102-110.

Halpern, C. T., Udry, J. R., Campbell, B., & Suchindran, C. (1999). Effects of body fat on weight concerns, dating, and sexual activity: A longitudinal analysis of black and white adolescent girls. *Developmental Psychology, 35*(3), 721-736.

Halpern, C. T., Udry, J. R., & Suchindran, C. (1997). Testosterone predicts initiation of coitus in adolescent females. *Psychosomatic Medicine, 59,* 161-171.

Harter, S. (1999). *The construction of the self: A developmental perspective.* New York: Guilford Press.

Health Canada. (1999). *Children and youth: The role of the determinants of health.* Retrieved January 28, 2003, from the World Wide Web: http://www.hc-sc.gc.ca/hppb/childhood-youth/spsc.html

Herold, E. S. (1984). *Sexual behaviour of Canadian young people.* Markham, ON: Fitzhenry & Whiteside.

Hutchinson, M. K. (2002). The influence of sexual risk communication between parents and daughters on sexual risk behaviors. *Family Relations, 51*(3), 238-247.

Hyde, J. S., & DeLamater, J. (1997). *Understanding human sexuality* (6th ed.). New York: McGraw-Hill.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behaviour: Moderator effects and developmental change. *Developmental Psychology, 31*(6), 923-933.

Johnson, A. (2000). *Adolescent risk-taking.* Retrieved July 10, 2003 from http://www.christie.ab.ca/aadac/Parents/risktaking.htm

Jones, J. M., Bennett, S., Olmstead, M. P., Lawson, M. L., & Rodin, G. (2001). Disordered eating attitudes and behaviours in teenage girls: A school-based study. *Canadian Medical Association Journal, 165*(5), 547-552.

Kasen, S., & Cohen, P. (1998). Adolescent school experiences and dropout, adolescent pregnancy, and young adult deviant behavior. *Journal of Adolescent Research, 13*(1), 49-73.

Kelly, G. F. (1994). *Sexuality today: The human perspective.* Guilford, CT: The Dushkin Publishing Group.

King, A. J. C., Beazly, R. P., Warren, W. K., Hankins, C. A., Robertson, A. S., & Radford, J. L. (1988). *Canada youth and AIDS study.* Ottawa, ON: Health and Welfare Canada.

Kirby, D. (2002). The impact of schools and school programs upon adolescent sexual behaviour. *Journal of Sex Research, 39*(1), 27-34.

Kotchick, B. A., Shaffer, A., Forehand, R., & Miller, K. S. (2001). Adolescent sexual risk behaviour: A multi-system perspective. *Clinical Psychology Review, 21*(4), 493-519.

Kraut-Becher, J. R., & Aral, S. O. (2003). Gap length: An important factor in sexually transmitted disease transmission. *Sexually Transmitted Diseases, 30*(3), 221-224.

Krovetz, M. L. (1999). Resiliency: A key element for supporting youth at risk. *Clearing House, 73*(2), 121-124.

Langsford, S., Douglas, G, & Houghton, S. (1998). Gender- and age-specific developmental patterns of risk-taking among children and adolescents: An exploratory study. *Westminster Studies in Education, 21*, 7-20.

Lee, C., Su, Y., & Hazard, B. P. (1998). The contingent effects of risk perception on risk-taking behaviour: Adolescent participative orientation and marijuana use. *Journal of Youth and Adolescence, 27*(1), 17-27.

Leigh, G. K., Weddle, K. D., & Loewen, I. R. (1988). Analysis of timing of transition to sexual intercourse for black adolescent females. *Journal of Adolescent Research, 3,* 333-344.

Leitch, M. L. (1998). Contextual issues in teen pregnancy and parenting: Refining our scope of inquiry. *Family Relations, 47*(2), 145-149.

Levitt, M. Z., & Selman, R. L. (1996). The personal meaning of risk behavior: A developmental perspective in friendship and fighting in early adolescence. In G. G. Noam & K. W. Fischer (Eds.), *Development and vulnerability in close relations.* Mahwah, NJ: Lawrence Erlbaum.

Luster, T., & Small, S. A. (1994). Unprotected sex as sexual risk. *Journal of Marriage and the Family, 56*(3), 622-632.

Manlove, J. (1998). The influence of high school dropout and school disengagement on the risk of school-age pregnancy. *Journal of Research on Adolescence, 8*(2), 187-220.

Marshall, W. L., & Firestone, P. (1999). *Abnormal psychology perspectives.* Scarborough, ON: Prentice-Hall Canada.

Massey-Stokes, M. S. (2000). Prevention of disordered eating among adolescents. *The Clearing House, 73*(6), 335-340.

Matlin, M. W. (1992). *Psychology.* Toronto, ON: Harcourt Brace College.

McClintock, M. K., & Herdt, G. (1996). Rethinking puberty: The development of sexual attraction. *Current Directions in Psychological Science, 5*(6), 178-183.

McKay, A., Fisher, W., Maticka-Tyndale, E., & Barrett, M. (2001). Adolescent sexual health education: Does it work? Can it work better? An analysis of recent research and media reports. *The Canadian Journal of Human Sexuality, 10*(3/4), 127-135.

Miller, B. C., & Moore, K. A. (1990). Adolescent sexual behaviour, pregnancy and parenting: Research through the 1980's. *Journal of Marriage and the Family, 52,* 1025-1044.

Miller, R. (2001). Education for personal and cultural transformation. *Natural Life, 77,* 20-43.

Ministry of National Health and Welfare. (1994). C*anadian guidelines for sexual health education.* Ottawa, ON: Minister of Supply and Services Canada.

Mitchell, M., & Jolley, J. (1996). *Research design explained.* Toronto, ON: Harcourt Brace College.

Moreau-Gruet, F., & Ferron, C. (1996). Adolescent sexuality: The gender gap. *AIDS Care, 8*(6), 641-654.

Nahom, D., Wells, E., Gilmore, M. R., Hoppe, M., Morrison, D. M., Archibald, M., et al. (2001). Differences by gender and sexual experience in adolescent sexual behavior: Implications for education and HIV prevention. *Journal of School Health, 71*(4), 153-158.

Neumark-Sztainer, D., Story, M., Dixon, L. B., & Murray, D. M. (1998). Adolescents engaging in unhealthy control behaviors: Are they at risk for other health-compromising behaviors? *American Journal of Public Health, 88*(6), 952-955.

O'Dea, J. A., & Abraham, S. (1999). Onset of disordered eating attitudes and behaviours on early adolescence: Interplay of pubertal status, gender, weight, and age. *Adolescence, 34*(136) 671-679.

O'Dea, J. A., & Abraham, S. (2002). Eating and exercise disorders in young college men. *Journal of American College Health, 50*(6), 273-279.

O'Dea, J., & Maloney, D. (2000). Preventing eating and body image problems in children and adolescents using the health promoting schools framework. *Journal of School Health, 70*(1), 18-21.

Ontario Ministry of Education and Training. (1998). *The Ontario curriculum grades 1-8 – Health and physical education.* Toronto, ON: Queen's Printer for Ontario.

Ontario Ministry of Education and Training. (1999). *The Ontario curriculum grades 9 and 10 – Health and physical education.* Toronto, ON: Queen's Printer for Ontario.

Ontario Ministry of Education and Training. (2000). *The Ontario curriculum grades 11 and 12 – Health and physical education.* Toronto, ON: Queen's Printer for Ontario.

Parsons, J. T., & Halkitis, P. N. (2000). Perceptions of the benefits and costs associated with condom use and unprotected sex among late adolescents. *Journal of Adolescence, 23*(4), 377-392.

Paukku, M., Quan, J., Darney, P., & Raine, T. (2003). Adolescents' contraceptive use and pregnancy history: Is there a pattern? *Obstetrics & Gynecology, 101*(3), 534-539.

Piaget, J. (1954). *The construction of reality in the child.* New York: Basic Books.

Polce-Lynch, M., Myers, B., Kliewer, W., & Kilmartin, C. (2001). Adolescent self-esteem and gender: Exploring relations to sexual harassment, body image, media influence, and emotional expression. *Journal of Youth and Adolescence, 30*(2), 225-244.

Ponton, L. E. (1998). The romance of risk. *Mothering Magazine, 90.* Retrieved from the world wide web on January 26, 2003, at http://www.mothering.com/15-0-0/html/15-4-0/15-4-romanceofrisk90.shtml

Pryon, T., & Wiederman, M. W. (1998). Personality features and expressed concerns of adolescents with eating disorders. *Adolescence, 33*(130), 292-302.

Regional Municipality of Niagara (2000). *Roots of empathy program*. Retrieved January 26, 2003 from the world wide web: http://www.regional.niagara.on.ca/media/2000/sep12-00.html.

Rolison, M. R. (2002). Factors influencing adolescents' decisions to engage in risk-taking behaviour. *Adolescence, 37*(147), 585-597.

Romeo, F. (1994). Adolescent boys and anorexia nervosa. *Adolescence, 29*(115), 643-647.

Sambell, K., & McDowell, L. (1998). The construction of the hidden curriculum: Messages and meanings in the assessment of student learning. *Assessment and Evaluation in Higher Education, 23*(4), 391-403.

Santrock, J. W. (1996). *Adolescence.* Toronto, ON: Brown & Benchmark.

Saunders, S. A., & Reinisch, J. M. (1999). Would you say you "had sex" if...? *The Journal of the American Medical Association, 281*(3), 275-277.

Sears, J. T. (1992). Dilemmas and possibilities of sexuality education: Reproducing the body politic. In J. Sears (Ed.), *Sexuality and the curriculum* (pp. 34-58). New York: Teachers College Press.

Statistics Canada. (1996). *Census report*. Ottawa, ON: Statistics Canada.

Statistics Canada. (1997). *Health reports.* Ottawa, ON: Statistics Canada.

Statistics Canada. (2000). *Census report.* Retrieved July 5, 2001, from the World Wide Web: http://www.statcan.ca

Stevens, J. (1992). *Applied multivariate statistics for the social sciences (2nd ed.).* Hillside, NJ: Lawrence Erlbaum Associates.

Striegel-Moore, R. H., & Cachelin, F. M. (1999). Body image concerns and disordered eating in adolescent girls: Risk and protective factors. In N. G. Johnson, M. C. Roberts, & J. Worell (Eds.), *Beyond appearance: A new look at adolescent girls* (pp. 85-108). Washington, DC: American Psychological Association.

Sweet, S. A., & Grace-Martin, K. (2003). *Data analysis with SPSS: A first grade course in applied statistics.* Toronto, ON: Pearson Education.

Symons, C. W., & Cinelli, B. (1997). Bridging student health risks and academic achievement through comprehensive school health programs. *Journal of School Health, 67*(6), 220-228.

Tenore, J. L. (2001). Challenges in eating disorders: Past and present. *American Family Physician, 64*(3), 367-368.

Terry, E., & Manlove, J. (in press). Trends in sexual activity and contraceptive use among teens. *National Campaign to Prevent Teen Pregnancy.*

Tolman, D. L. (1999). Female adolescent sexuality in relational context: Beyond sexual decision making. In N. G. Johnson, M. C. Roberts, & J. Worell (Eds.), *Beyond appearance: A new look at adolescent girls* (pp. 227-246). Washington, DC: American Psychological Association.

Tolman, D. L., & Szalacha, L. A. (1999). Dimensions of desire: Bridging qualitative and quantitative methods in a study of female adolescent sexuality. *Psychology of Women Quarterly, 23,* 7-39.

Trussel, J., & Vaughn, B. (1991). Selected results concerning sexual behaviour and contraceptive use from the 1988 national survey of family growth and the 1988 national survey of adolescent males. (Working Paper 91-92.) Princeton, NJ: Office of Population Research.

Udry, J. R., & Billy, J. O. G. (1987). Initiation of coitus in early adolescence. *American Sociological Review, 52,* 841-855.

Wade, T. J., & Brannigan, A. (1998). The genesis of adolescent risk-taking: Pathways through family, school and peers. *Canadian Journal of Sociology, 23*(1), 1-19.

Walker, S. P., Grantham-McGregor, S. M., Himes, J. H., Williams, S., & Duff, E. M. (1998). School performance in adolescent Jamaican girls: Associations with health, social, and behavioural characteristics, and risk factors for dropout. *Journal of Adolescence, 21,* 109-122.

Weiderman, W. (1996). Women, sex, and food: A review of research on eating disorders and sexuality. *Journal of Sex Research, 33*(4), 301-312.

Weiderman, W., & Hurst, S. R., (1998). Body size, physical attractiveness, and body image among young adult women: Relations to sexual experience and sexual esteem. *Journal of Sex Research, 35*(3), 272-282.

Whitaker, D. J., & Miller, K. S. (2000). Parent-adolescent discussions about sex and condoms: Impact on peer influences of sexual risk behavior. *Journal of Adolescent Research, 15*(2), 251-274.

Wolfe, P., Burkman, M. A., & Streng, K. (2000). The science of nutrition. *Educational Leadership, 57*(6), 54-60.

Woloshyn, V. E., & Rye, B. J. (1995). Using Bloom's learning taxonomies to conceptualize effective sexuality education for adolescents. *The Canadian Journal of Human Sexuality, 4*(3), 155-167.

Woods, A. (2002). Teenagers and risk-taking at camp. *Camping Magazine*, 75(1), 48-51.

Wren, D. J. (1999). School culture: Exploring the hidden curriculum. *Adolescence, 34*(135), 593-596.

Wyatt, G. E. (1989). Reexamining factors predicting Afro-American and white American women's age at first coitus. *Archives of Sexual Behaviour, 18,* 271-296.

Appendix A

YLC-CURA Questionnaire

Youth Resilience Questionnaire

1. How old are you?
   ☐ 10 or younger ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15
   ☐ 16 ☐ 17 ☐ 18 or over

2. Are you male or female?
   ☐ Male ☐ Female

PART Z ***In the LAST 12 MONTHS, how often have you done the following?***

	NEVER	ONCE	A FEW TIMES	MORE THAN 5 TIMES
1. Binge ate/ under ate.....	.....	.....	.....	.....

PART HH ***Now some questions about your health. Fill in the answers that best describe you***

1. How do you describe your body weight?
   ☐ underweight ☐ just right ☐ overweight

4. During the LAST MONTH, what (if any) method(s) did you use to change your weight (Fill in all that apply)
   ☐ eat more ☐ eat less ☐ smoke ☐ steroids ☐ go without eating for 24 hours or more (fasting)
   ☐ use laxatives ☐ exercise ☐ vomit ☐ food supplements

6. How good looking would you say you are?
   ☐ Very good looking ☐ Good looking ☐ Somewhat good looking ☐ Not good looking

PART RR The following questions ask you to think about how yourself and others assess risk.

1. How health-compromising do you believe it is for YOU to be doing the following things?

	VERY HIGH	HIGH	MEDIUM	LOW	VERY LOW
2. Dieting Constantly.....	.....	.....	.....	.....	.....
7. Having Sex.....	.....	.....	.....	.....	.....

6. How health-compromising do you believe it is for OTHER PEOPLE YOUR OWN AGE to be doing the following things?

	VERY HIGH	HIGH	MEDIUM	LOW	VERY LOW
2. Dieting Constantly.....	.....	.....	.....	.....	.....
7. Having Sex.....	.....	.....	.....	.....	.....

PART VV ***Fill in the circle that best describes you.***

7. How important is not having sex (i.e. abstinence) to you?
   ☐ very important ☐ important ☐ somewhat important ☐ not at all

8. In the last 12 months how often have you engaged in the following ?

		NEVER	ONCE	A FEW TIMES A YEAR	A FEW TIMES A MONTH	A FEW TIMES A WEEK	EVERY DAY
A.	Kissing a boyfriend/girlfriend.....	☐	☐	☐	☐	☐	☐
B.	Touching a boyfriend's/girlfriend's genitals.....	☐	☐	☐	☐	☐	☐
C.	Touching a boyfriend's/girlfriend's genitals with your mouth.....	☐	☐	☐	☐	☐	☐
D.	Sexual intercourse	☐	☐	☐	☐	☐	☐

12. During your life, with how many people have you had sexual intercourse?
☐ 1 person ☐ 2 people ☐ 3 people
☐ 4 people ☐ 5 people or more

13. During the LAST MONTH, with how many people did you have sexual intercourse?
☐ 0 People ☐ 1 person ☐ 2 people
☐ 3 people ☐ 4 people ☐ 5 people or more

15. Over the LAST 12 MONTHS how often have you used a condom during sexual intercourse?
☐ always ☐ more than half the time ☐ half the time
☐ less than half the time ☐ never

16. How many times have you been pregnant or gotten someone pregnant?
☐ not sure ☐ never ☐ once ☐ twice or more

If yes

How many children do you have? ☐ none ☐ one ☐ two or more
How many children do you live with? ☐ none ☐ one ☐ two or more

19. How many times have you been treated for a sexually transmitted disease (STD)?
☐ not sure ☐ never ☐ once ☐ twice or more

Appendix B

Proposal to YLC-CURA

1. Names of Investigators

Researcher: Lynn Armstrong

Supervising Professor: Dr. Sandra Bosacki

Committee Members: Dr. Vera Woloshyn, Dr. Anthony Bogaert

2. Statement of project goals

The project goal of this study is to understand why adolescents engage in risk taking behaviours such as having unprotected sex and dieting. To understanding this it is essential to examine the adolescents sense of global self- esteem. It may be possible to utilize this research to aid in the development of future sexual health education curriculum. The government states that their curriculum will not only foster a healthy lifestyle, but will also improve psychological well-being and self-esteem in the adolescent (Ministry of Education and Training, 1999). Students before reaching grade nine will have been taught about pregnancy, contraception, and sexually transmitted diseases, as well as abstinence (Ministry of Education and Training, 1998).

3. Summary of present state of knowledge

There seems to be an interesting link between adolescent sexuality and their self-esteem. Research indicates that an adolescent with high self-esteem is more likely to have sexual intercourse. This means that the more positive feelings they hold about the self, the more likely they are to engage in sexual behaviours. These sexual behaviors are petting, oral sex, and sexual intercourse. Having high self -esteem may lead to more confidence or lead people to believe that they are entitled to sex. The sexual activity / self -esteem relation can also be explained by people engaging in sexual activities in an

attempt to increase their self-esteem (Baumeister & Tice, 2001). Those with high self-esteem are also using contraception more often (Baumeister & Tice, 2001). Unfortunately the number may simply reflect that those adolescents are overall having more sex so it stands to reason that the adolescent who is having sex more often will have the opportunity to use contraception more often.

The relation between adolescent sexual behaviour and self -esteem is complex. For men the relationship is usually the more sexual partners, the more sex, the higher the self-esteem (Strouse, & Beurkel-Rothfuss, 1987; Walsh, 1991). For women the relationship becomes complicated compared to males. The more sexual partners, the self-esteem tends to become lower, but with more sex with only one partner the self-esteem rises (Newcomb, 1985). With high self- esteem for women there tends to be more sex, and fewer sexual partners (Newcomb, 1985; Strouse & Buerkel-Rothfuss, 1987). There does not seem to be a relation between self-esteem and pregnancy in women (Gates, 1997).

Although sexual health education curriculum addresses issues of contraception and pregnancy in the classroom, a large proportion of Canadian adolescents remain at risk (Herold, 1984). Seven percent of adolescents in Canada in 1981 were pregnant yet some studies have suggested that number is underestimated and closer to 17% (Santrock, 1996; Wadhera & Millar, 1997). Of those seven percent only 2.6% resulted in live births (Herold, 1984).

This difference is explained through the increasing popularity of abortion as well as the high rate of miscarriage (Herold, 1984).

Studies have also shown a lack of consistency in contraceptive use among adolescents (Flora & Thoresoen, 1988). Adolescents engage in behaviours that put them at risk of sexually transmitted diseases and pregnancy. In Canada it is reported that only 58% of females and 37% males use contraception during intercourse during adolescence (Herold, 1984). Low self-esteem is postulated to be a risk variable for engaging in problem behaviours (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995) Another possible explanation for these high risk behaviours is the adolescent personal fable where the adolescent believes that sexual transmitted diseases and pregnancy cannot happen to them (Elkind, 1967).

4. Methods -Specific Data to be assessed

- Self-esteem (Part KK) to sexual behaviour (Part VV #6, Part RR #7), Self-esteem to self-perception (Part HH: #1-5)
- Self-esteem to eating disorders (Part HH #1-3, Part Z "binge ate / underrate", Part EE "my weight")
- Self-esteem to contraception (Part VV: #13, 14, 16)
- Self -esteem and abstinence (Part VV: #6- 7)
- Self -esteem and pregnancy (Part VV: 15)
- Self -esteem and number of sexual partners (Part VV: # 11-12)

There will be gender and age comparisons completed on the above sections.

5. Anticipated results and their importance / results & applications of findings

The anticipated results of this study are that there will be a positive correlation between risk taking behaviours (i.e. sexual behaviours, contraceptive use, number of

sexual partners) and self-esteem. There is an anticipated negative correlation between pregnancy, abstinence, eating disorders and self -esteem. I expect that gender differences will reflect that males more than females will report high self-esteem along with increased sexual behaviours.

There is a need for this research in the lack of research currently compiled on the adolescent male. It seems to me that the relationship between female adolescent self-esteem and their reported sexual behaviour is more complex than that of the male. Despite some research on this subject I believe there is a need to further investigate this area. The study will provide a greater understanding of the adolescent and the relationship between their sexual practices and their sense of self-worth.

It is important to study the area of adolescent self to further the exploration and development of self-concept literature, adolescent literature, and psychological and educational literature. This research is also important to aid in understanding adolescent self-esteem by the teacher, learner and the curriculum. The teacher will be able to use this information to more effectively work with the students as well as knowing what areas of the Ontario sexual health education curriculum are more important for emphasis. The learner will be able to use this information for self-reflection in his or her own risk taking behaviours. The curriculum can be aided by this research. The study's results may promote the development of curriculum aimed to foster a healthy attitude toward oneself and sexuality.

The results of this study may aid in the further development of sexual health education curriculum. It will also be of use to adolescent / youth counsellors, and

practitioners in the area of psychology to aid in the further understanding of adolescent behaviour.

The current study can influence curriculum design, as well as aid in the treatment of adolescent sexual and self-esteem issues. It may also be useful in the future in helping groups, such as AIDS Niagara, market their advertising and promotion towards the adolescent.

6. Requested Number of Participants

For the purposes of my current research I request that CURA allow me access to a total of 600 of the high school student's questionnaires (randomly selected from the larger sample). I request that the break down of these 600 questionnaires be 200 (randomly selected) per grade (nine, eleven, OAC), and 100 per gender in each of these grades, totaling 600.

Having access to these 600 questionnaires will allow me to increase the power and therefore the validity of my research analysis. These 100 subjects per group would increase my power to .94 (Stevens, 1992).

7. **Project Timelines**

Proposal completion: Summer 2001

Data analysis: September/October 2001

Thesis completion: April/ 2002

References

Baumeister, R. F., & Tice, D. M. (2001). *The social dimension of sex*. Toronto: A11yn and Bacon.

Dates, G. L. (1997). Self-esteem enhancement through fertility? Socioeconomic prospects, gender, and mutual influence. *American Sociological Review, 62*, 965-973.

Elkind, D. (1967). Egocentrism in adolescence. *Child Development. 38*,1025- 1034.

Flora, J. A., & Thoresen, C. E. (1988). Reducing the risk of AIDS in adolescents. *American Psychologist. 43*(11), 965-970.

Herold, E. S. (1984). *Sexual behaviour of Canadian young people*. Markham, ON: Fitzhenry & Whiteside.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behaviour: moderator effects and developmental change. *Developmental Psychology, 31*(6), 923-933.

Ministry of Education and Training. (1998). *The Ontario curriculum grades 1-8 - Health and physical education.* Toronto, ON: Queen's Printer for Ontario.

Ministry of Education and Training. (1999). *The Ontario curriculum grades 9 and 10- Health and physical education.* Toronto, ON: Queen's Printer for Ontario.

Newcomb, M. D. (1985). Sexual experience among men and women: Associations within three indepéndent samples. *Psychological Reports, 56*, 603-614.

Santrock, J. W. (1996). *Adolescence.* Toronto: Brown & Benchmark.

Stevens, J. (1992). *Applied multivariate statistics for the social sciences* (2nd ed.) Hillside, NJ: Lawrence Erlbaum Associates.

Strouse, J. S., & Buerkel-Rothfuss, N. L. (1987). Media exposure and the sexual attitudes and behaviours of college students. *Journal of Sexual Education and Therapy, 13*, 43-51.

Wadhera, S., & Millar, W. J. (1997). Teenage pregnancies, 1974 to 1994. *Health Reports. 9*(3), 9-17.

Walsh, A. (1991). Self-esteem and sexual behavior: Exploring gender differences. *Sex Roles, 25*, 441-450.

Appendix C

YLC-CURA Personal Acceptance Letter

Youth Lifestyle Choices
Community University Research Alliance

The YLC-CURA is a long-term strategic partnership between a number of Brock University faculty & Niagara Region Community Agencies to better understand resiliency and youth lifestyle choices.

Member Organizations
- Brock University
- Central West Health Planning Information Network
- Centre for Addiction & Mental Health
- City of St. Catharines
- City of Welland
- District School Board of Niagara
- Niagara Alcohol & Drug Assessment Service
- Niagara Catholic District School Board
- Niagara Centre for Youth Care
- Niagara District Health Council
- Operation Springboard
- Port-Colborne/ Wainfleet Healthy Lifestyles Coalition
- Regional Niagara Public Health Department
- YMCA
- YWCA of St.Catharines

The YLC-CURA is a core partner on a Health Canada Centre of Excellence for Youth Engagement

Contact Information

YLC-CURA
Brock University
St. Catharines, ON
L2S 3A1
Phone: (905) 688-5550
Ext. 4614
Fax: (905) 688-3344
Email:
cura@www.brocku.ca
Web:www.brocku.ca/cura

YLC-CURA is a Social Sciences & Humanities Research Council of Canada funded project.

July 27,2001

Lynn Armstrong
Faculty of Education
Brock University
St. Catharines, Ontario
L2S 3A1

Dear Lynn:

I am pleased to inform you that the CURA Research Review Committee has approved your proposal to access data from the CURA survey for your master's thesis. The data file will be available beginning on August 13,2001. Please contact Dana Reker (ext. 4613), the CURA database manager, to set up a time to meet to go over procedures for accessing the data.

I wish you all the best in completing your thesis.

Sincerely,

Francis Chandler

for Teena Willoughby, Ph.D.
Chair, CURA Research Review Committee
University Co-Director, YLC-CURA

cc. Dr. S. Bosacki

Appendix D

YLC-CURA Research Ethics Board Acceptance Letter

Brock University

esearch Ethics Board | Extensions 3205/4315, Room

FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Teena Willoughby, Child and Youth Studies

FILE: **00-116, WILLOUGHBY**

The Brock University Research Ethics Board has reviewed the revised research proposal:

"Enhancement of yourth resiliency and reduction of harmful behaviours leading to healthy lifestyle choices"

The Research Ethics Board finds that your revised proposal conforms to the Brock University guidelines set out for ethical research.

*** Accepted as clarified**

Please note: Any Changes or Modifications to this approved research must be reviewed and approved by the committee. If so, please complete form #5 - ***Request for Ethics Clearance of a Revision or Modification to an Ongoing application for Ethics Review of Research with Human Participants*** and submit it to the Chair of the Research Ethics Board. You can download this form from the Office of Research Services or visit the web site: http://www.BrockU.CA/researchservices/mainethicsformpage.html

Appendix E

Research Ethics Board Secondary Analysis Approval Letter

Brock University

Senate Research Ethics Board
Extensions 3205/4315, Room C315

FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Vera Woloshyn, Faculty of Education
Lynn Armstrong, Faculty of Education

FILE: 00-035, Armstrong

DATE: November 10, 2000

The Brock University Research Ethics Board has reviewed the research proposal:

"Views of Sexual Education for Studies with Developmental Disabilities"

The Research Ethics Board finds that your revised proposal conforms to the Brock University guidelines set out for ethical research.

* Accepted as Clarified

Please note: Any Changes or Modifications to this approved research must be reviewed and approved by the committee. If so, please complete form #5 - Request for Ethics Clearance of a Revision or Modification to an On-going application for Ethics Review of Research with Human Participants and submit it to the Chair of the Research Ethics Board. You can download this form from the Office of Research Services or visit the web site:
http://www.BrockU.CA/researchservices/mainethicsformpage.html

DB/ll

****

Lise Laroche - Brock University
Administrative Assistant
Office of Research Services
http://www.brocku.ca/researchservices/
phone: (905)688-5550, ext. 4315
fax: (905)688-0748
email: llaroche@spartan.ac.brocku.ca

****

Appendix F

Additional Correlational Findings

There were a number of additional correlational findings revealed during data analysis. Although these findings did not directly answer this study's research questions they are considered important and are therefore also being presented here. A positive correlation was found between sexual risk-taking behaviour and STD/contraceptive use, r (377) = .15, $p < 0.01$, risk outcomes, r (377) = .27, $p < 0.01$, and dieting risk perception, r (377) = .14, $p < 0.01$. These results indicated that students who engage in the health-compromising practice of increased number of sexual partners are also more likely to have had a STD or not use contraception, are more likely to become pregnant or get their partner pregnant, and are less likely to perceive dieting as a health-compromising behaviour.

Some of the results are not overly surprising, such as there is a positive correlation between abstinence and recent sex, r (577) = .36, $p < 0.01$, indicating that if abstinence is not very important to you, you are more likely to engage in recent sexual behaviours. Another is that STD/contraceptive use is positively correlated with sexual risk outcomes, r (377) = .64, $p < 0.01$, meaning that the fewer times you use contraceptives, the more times you will get pregnant or make someone pregnant, or have a sexually transmitted disease.

There is a negative relation between body image perception and sexual risk perception, r (580) = .15, $p < 0.01$, indicating that those with more negative body image perception will be more likely to view sex as a risk-taking behaviour. Sexual risk-taking behaviours and sexual risk outcomes positively correlate for both the males, r (176) = .32, $p < 0.01$, and the females, r (227) = .18, $p < 0.05$. This correlation was significantly more positive for males than for females (Fisher's r to $z = 5.87$ $p < .01$). However, sexual risk-taking

for the males also positively correlates with STD/contraceptive use, r (176) = .22, $p <$ 0.01, whereas sexual risk-taking positively correlates with dieting risk perception for females, r (199) = .18, $p < .05$. These results suggest that while males and females who are engaging in increased sexual risk-taking behaviours both are experiencing the risk outcomes, males also are more likely to have a sexually transmitted disease or to not use contraception, whereas these females are not as likely to view dieting as a risk-taking behaviour.

Sexually transmitted diseases/contraceptive use is correlated with risk outcomes for both males, r (204) = .71, $p < 0.01$, and females, r (227) = .57, $p < 0.01$. This correlation was significantly more positive for males than for females (Fisher's r to z = 6.25, $p < .01$). This correlation indicates that males and females who do not use contraception are more likely to get a STD or get pregnant.

Disordered eating is positively correlated with binge eating/undereating for both males, r (173) = .16, $p < 0.05$, and females, r (227) = .42, $p < 0.01$. This correlation was significantly more positive for females (r = .42) than for males (r = .16; Fisher's r to z = -6.97 $p < .01$). This means that there is a relation for both males and females between increased number of disordered eating activities and binge eating or undereating more often, and for females this relation is significantly more positive. Body image perception is positively correlated with disordered eating for both males, r (173) = .17, $p < 0.05$, and females, r (227) = .16, $p < 0.05$, meaning that there is a relation between a negative body image perception and increased amount of disordered eating activities.

The significant correlation between abstinence and recent sex was consistent across all three grades of 9, r (192) = .40, $p < 0.01$, grade 11, r (188) = .16, $p < 0.05$, and

OAC, r (193) = .36, $p < 0.01$, indicating that for all three groups, the less important abstinence is, the more recent sex the subjects will have engaged in. When comparing grade 9 to grade 11, the correlation abstinence and recent sex was found to be significantly more positive for grade 9 students than grade 11 students (Fisher's r to z = -22.68, $p < .01$). The correlation was significantly more positive for grade 9 students than grade 11 students (Fisher's r to z = 7.66, $p < .01$) and significantly more positive for OAC students than grade 11 (Fisher's r to z = 16.95, $p < .01$).

Abstinence is also negatively correlated with STD/Contraceptive use, r (158) = -.24, $p < 0.01$, and risk outcomes, r (160) = -.26, $p < 0.01$, in OAC indicating that as abstinence importance lessens, there are less STD/contraceptive problems and less risk outcome problems such as pregnancy.

For grade 11 students, recent sex is also positively correlated with sexual risk-taking, r (142) = .18, $p < 0.05$, indicating that the more recent sex these students are engaging in, the more partners they have. This same group had significant correlations involving sexual risk-taking and STD/contraceptive use, r (142) = .30, $p < 0.01$, as well as sexual risk outcomes, r (142) = .34, $p < 0.01$. These results indicate that grade 11 students who have had more sexual partners also are more likely to have a sexually transmitted disease, less likely to use contraception, and more likely to have had a sexual encounter resulting in pregnancy.

Correlations for OAC students found that sexual risk-taking behaviour was positively correlated with risk outcomes, r (142) = .40, $p < 0.01$. This indicates that OAC students who have had more sexual partners are more likely to have had an STD or a pregnancy.

Sexually transmitted diseases and contraceptive use was positively correlated with sexual risk outcomes for grades 9, r (104) = .73, $p < 0.01$, grade 11, r (167) = .70, $p < 0.01$, and OAC, r (158) = .39, $p < 0.01$. This indicates that students in grades 9, 11, and OAC who do not use contraception are more likely to have had an STD or have had a pregnancy in the relation. The correlation STD/contraceptive use and sexual risk outcomes was found to be significantly more positive for grade 9 students than OAC students (Fisher's r to $z = 5.88$, $p < .01$) and significantly more positive for grade 11 students than grade OAC students (Fisher's r to $z = -16.16$, $p < .01$). No significant difference was found between grade 9 and grade 11 students.

Body image perception is also positively correlated with disordered eating habits for all three grades: grade 9, r (126) = .19, $p < 0.05$; grade 11, r (139) = .21, $p < 0.05$; and OAC, r (133) = .18, $p < 0.05$. No significant differences were found between groups. For OAC students there is also a positive correlation between body image perception and binge eating/undereating, r (194) = .21, $p < 0.01$. These results indicate that for all three grades that students who have a relatively more negative body image esteem are more likely to engage in disordered eating habits, and for OAC students they are also more likely to binge eat or undereat more often.

There is also a positive correlation between binge eating/undereating and disordered eating for all three grades: grade 9, r (126) = .49, $p < .01$; grade 11, r (139) = .34, $p < 0.01$; and OAC, r (133) = .32, $p < 0.01$. These results indicate that for all three grades the more disordered eating activities that are done, the more often binge eating or undereating take place.

There was one correlational finding that was a consistently significant across all six gender by grade groups. STD/contraceptive use was found to be positively correlated with sexual risk outcomes for grade 9 males r (56) = .75, $p < 0.01$, grade 9 females r (43) = .73, $p < 0.01$, grade 11 males r (75) = .79, $p < 0.01$, grade 11 females r (90) = .56, $p < 0.01$, OAC males r (65) = .26, $p < 0.05$, and OAC females r (90) = .49, $p < 0.01$. These results indicate a relation between not using contraception and pregnancy or sexually transmitted diseases. This correlation was significantly more positive for grade 11 males than for grade 11 females (Fisher's r to $z = 4.82$, $p < .01$).

For males in grade 9, the results of the Pearson r correlations showed there was also a significant correlation between body image perception and disordered eating behaviours r (51) = .40, $p < 0.01$. Examination of these findings showed that grade 9 males who reported a relatively more negative body image perception also reported more frequent disordered eating habits.

When grade 9 female results, as shown in Table 31, were examined they showed significant relations between abstinence and recent sex r (94) = .64, $p < 0.01$. These results suggest that grade 9 females who reported abstinence as being less important also reported engaging in more recent sexual activities.

When grade 9 female results, as shown in Table 31, were examined they showed significant relations between recent sex and sexual risk-taking behaviour r (37) = .35, $p < 0.05$. These results suggest that those who reported engaging in more recent sex also reported engaging in more sexual risk-taking behaviours.

When grade 9 female results were examined they showed significant relations between sexual risk perception and body image perception r (96) = -.21, $p < 0.05$ as well

as between sexual risk perception and binge eating/undereating r (97) = .23, $p < 0.05$. Those who reported perceiving sex as less of a risk also reported a more positive body image perception. Those who reported perceiving sex as less of a risk also reported engaging in more binge eating or undereating activities.

Grade 9 females also showed significant relations between disordered eating and binge eating/undereating r (73) = .50, $p < 0.01$. This indicates that those who reported more disordered eating activities also reported binge eating or undereating more often.

Grade 11 male correlations resulted in a few more significant relations (see Table 32). Significant positive correlations were found between recent sex and sexual risk-taking behaviour r (66) = .33, $p < 0.01$, sexual risk-taking and STD/contraceptive use r (66) = .42, $p < 0.01$, and sexual risk-taking and sexual risk outcomes r (66) = .40, $p < 0.01$. These results suggest that males in grade 11 who reported more recent sexual engagement also reported more sexual partners and perceived dieting as less of a risk-taking behaviour. Those that reported more sexual partners also reported more sexually transmitted diseases or less use of contraception and reported more sexual relations resulting in pregnancy.

Grade 11 female results were significant correlations between recent sexual activities and STD/contraceptive use r (90) = .22, $p < 0.01$, sexual risk-taking and sexual risk outcomes r (74) = .27, $p < 0.05$, and binge eating/undereating and disorder eating r (78) = .33, $p < 0.01$. These results suggest that grade 11 females who reported more recent sexual activities also reported more sexually transmitted diseases or less contraceptive use, and that those who had more sexual partners were more likely to have been pregnant or had an STD. Those females that reported disordered eating behaviours

also reported increased occurrence of binge eating or undereating. When comparing grade 11 males and females on the correlation sexual risk-taking and sexual risk outcomes, males (r = .40) were found to be significantly more positive than females (r = .27; Fisher's r to z = 3.16, p < .01).

Analyses of both male and female OAC students' results revealed a correlation between abstinence and recent sex r (94) = .28, p < 0.01, r (97) = .44, p < 0.01, respectively, and sexual risk-taking and sexual risk outcomes r (56) = .48, p < 0.01, r (84) = .33, p < 0.01, respectively. Interpreting these results indicates that both male and female OAC students who report abstinence as being less important to them also report having more sexual partners, and OAC students who report having more sexual partners also report having more problems with pregnancies or sexually transmitted diseases.

OAC males had a significant correlation between body image perception and binge eating/undereating r (96) = .24, p < 0.05. OAC male students who reported a more negative body image perception also reported increased binge eating or undereating. STD/contraceptive use and sexual risk outcomes correlation was significantly more positive for OAC females r (90) = .49, p < 0.01, than for OAC males r (65) = .26, p < 0.05; Fisher's r to z = -2.94, p < .01).

OAC female students had significant correlations between abstinence and STD/contraceptive use r (90) = -.32, p < 0.01, body image perception and disordered eating r (72) = .24, p < 0.05, binge eating /undereating and disordered eating r (72) = .48, p < 0.01. These results indicate that OAC female students who reported abstinence as not very important also reported more contraceptive use and fewer sexually transmitted

diseases. The ones that indicated that they binge eat or undereat reported that they engage in more disordered eating habits and perceived dieting as less of a risk-taking behaviour.